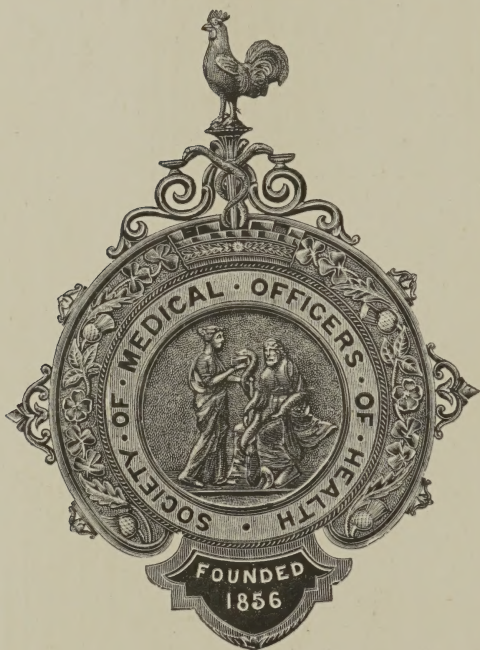


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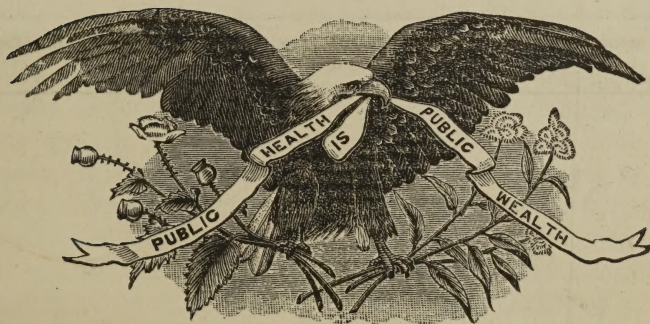
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THE SANITARIAN,

A MONTHLY MAGAZINE

DEVOTED TO THE

PRESERVATION OF HEALTH, MENTAL
AND PHYSICAL CULTURE.



VOLUME XXIX. JULY TO DECEMBER.

A. N. BELL, A.M., M.D., Editor.

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THE SANITARIAN.

JULY, 1892.

NUMBER 272.

THE NEED OF NATIONAL LEGISLATION FOR THE PROTECTION OF HUMAN LIFE.*

By A. N. BELL, A.M., M.D.

THE need of national legislation for the protection of human life is based upon the knowledge of the transmissibility of epidemic diseases by commerce.

This need obtains to a larger degree for the United States than for any other country in the world, because while the States severally have many inherent rights and obligations of their own, and among those rights certainly that of self-protection against dangers to human life, the nation alone has the power to regulate commerce ; and because, related to this commerce, the United States greatly exceeds any other country in the world as the collective centre of all nationalities and habits of life, more or less at variance with the conditions promotive of or in conflict with their own health or of the public health in this country.

Commerce, as hitherto conducted in the United States, in default of national legislation to prohibit the introduction of epidemic diseases has been and is in constant antagonism to the efforts of the States and their seaports to prevent their introduction. Hence, it may be truthfully asserted with regard to sanitary progress in this country, that it has not only been made for the most part without the aid of the general Government, but in actual contention against the Government practice in the contrary direction.

* Read in the Section on State Medicine, American Medical Association, at Detroit, Mich., June 8th, 1892.

4 National Legislation for the Protection of Human Life.

At the outset the general Government essayed to aid the seaports by providing hospitals for those sick with infectious diseases, and warehouses for infected merchandise, both of which commodities it has persistently supplied to the jeopardy of the public health and at great pecuniary cost to the people. It has fallen under my own observation that some such structures eventually became so dangerous that the people in their vicinity destroyed them ; but some still exist at other seaports, memorials of the nation's efforts to co-ordinate the introduction of pestilential diseases with an unrestricted commerce in them. Fortunately, every State in the Union has the power to impose regulations for its own protection ; and all—or as many of the States as may so agree—have the power to impose interstate regulations for mutual protection against the introduction and spread of epidemic diseases in their midst. Indeed, not only every State, but every municipality and corporate village or town, has similar power ; and it has been in the exercise of such power by the corporate communities and the States severally, that, excepting the progress made in army and naval hygiene, and the work of the National Board of Health during its brief existence, all the progress in preventive medicine in this country has been made by the people in their own behalf against the fostering of disease by commerce. For this reason it is that there are not wanting some advocates of State and local sanitation exclusively as abundantly sufficient. And they would sustain the proposition by reference to the triumphs over preventable diseases by a large number of local boards of health throughout the country, particularly to the progress made under the auspices of the State boards. Indeed, such advocates—looking at but one side of the question—might cite one of the most triumphant examples of sanitary progress on record to show the sufficiency of local effort alone when fully aroused.

It has been a favorite maxim with me for many years that progress in measures for the protection of human life primarily consists in exposing the consequences of their neglect. In 1864, six years before the first State Board of Health (that of Massachusetts in 1869) was established, I was privileged to

belong to a voluntary association of citizens in New York,* whose members all appeared to me to be animated by the same sentiment—to seek out and publish the localizing causes of disease throughout the city. The report of the Association at the end of that year showed that, in an estimated population of 700,000, 495,592 persons lived in tenement-houses and cellars, with an average of $7\frac{1}{8}$ families to each tenement-house, and that many took boarders besides. The tenement-houses of one of the most thickly populated districts contained from 10 to 50 families each. The *pro rata* of ground area to each occupant was less than 15 square feet, and the space in the apartments to each occupant less than 300 cubic feet. One half of the tenement-house population had less than 500 cubic feet of air space to each person. The filthy surroundings were loathsome in the extreme.

The total number of deaths reported for the year 1863 was 25,196—an increase of 3952 upon the previous year; during the year 1864 there were several hundred more, and for the whole population a fraction less than one death annually to every 35 of the living.

For a period of twenty-five years, terminating at that time, the number of deaths reported by the City Inspector annually had fluctuated from one death to every 39 to one for every 27, and had even been as high as one to every $22\frac{1}{2}$ of the whole population; while among the most overcrowded tenement-house population it was one to every 19 of the living.

The outcome of that exposure was the establishment of the Metropolitan Board, in 1866. Under it and its subsequent modifications, cellar tenements have long since ceased to exist; the air space of the tenement-houses has been enlarged, by law, to not less than 600 cubic feet for each occupant; the death-rate of the city has been reduced to an average of about 24.5 per 1000 of the whole population; and for the tenement-house population—counting in the advantage gained by an improved class of tenement-houses—the mortality has been less than among the non-tenement class—due, doubtless, to the better surveillance of the tenement-houses by the Health Department. On the whole, a reduction of about 10 per 1000

* Citizens' Association.

of the population annually has been made in New York City since the establishment of the first scientific Board of Health there in 1866. The result since that time, as compared with a like period preceding the awakening of public attention and subsequent legislative action—brought about by the Citizens' Association—has been the saving of more than 500,000 human lives.

Again, the quarantine at the port of New York, aided (?) in the manner before indicated, and fed by commerce, had been, like the tenement-houses of the city, getting more and more deadly—proportional with patronage—until, in 1856, it reached a climacteric period.

The Health Officer's residence was at Tompkinsville, and the boarding place and anchorage in the Narrows, between Staten Island and the Long Island shore. In this narrow channel, from opposite the northern end of Staten Island, extending southward, and including Gravesend Bay, between Coney Island and Fort Hamilton, in the immediate trend of the prevailing southwest wind toward the Long Island shore, not more than 300 yards distant, there were anchored *at one time* during that summer over 200 infected vessels, chiefly with yellow-fever. That the disease should have been communicated to the people in such proximity on the Long Island shore is perfectly consistent with the nature of such a mass of infected material everywhere. Moreover, it was through the midst of this accumulation of infected commerce that all vessels to and from the port of New York, for the time, had to pass.

But it was a blessed epidemic. It roused the people round about to the assertion of their rights, for which they did not cease to contend until the quarantine, as it was at that time conducted, was destroyed, and subsequently, by Act of the Legislature, supplanted by the most efficient quarantine establishment in the world.

It would be an easy matter to cite other scarcely less signal triumphs of sanitation in the United States, independent of the several governments, equal to any that have taken place elsewhere during the now more than forty years since I have been not an wholly inactive observer. It is with knowledge limited to such progress in sanitation by the States and smaller communities that there are not wanting some men of

influence wholly opposed to national legislation for the protection of human life. If the States and many populous communities severally have such power, and have used it with such good results as those illustrated by the examples cited, they ask, In what consists the necessity for national legislation?

First, because there is too much independent power on the part of State and municipal *officials*, and, above all, of merchants and their ship masters, to do as they please, regardless of sanitary knowledge, or to ignore its importance when its exercise does not happen to harmonize with the political standard set up, or to chime in with money-getting propensities at the risk of the public health.

Of these, examples are by no means wanting. As one on a small scale, but exceedingly mischievous in its direction, the port of Perth Amboy, N. J., has been a thorn in the side of the New York quarantine and a menace to the health of the city ever since it became a port of entry. It claims the right—though not in so many words—and has frequently made attempts to exercise it (and not always ineffectually, there is reason to believe), to execute its privilege as a port of entry for infected vessels whose masters desire to shun the New York quarantine, by issuing a new clearance to New York, under the privilege of being a healthful port and a purblind health officer to the condition of the vessel.

But dangerous as such powers are, independent of even State control, they are insignificant as compared with some officials in higher places who would sacrifice the health of the State and nation to the opportunity for embarrassing a political opponent.

Every sanitarian in the Union knows that we have not far to seek for a prominent example in justification of these remarks; that for several years preceding the arrival of cholera-infected vessels at the port of New York in 1887 the quarantine establishment of New York had been allowed to decay and become notoriously deficient in means for the protection of the public health—in the face of universal intelligence that cholera was abroad—because the Governor of the State preferred to take the risk of a cholera epidemic rather than approve of legislative appropriations for preventive measures to be applied by those who differed with him in politics.

Unfortunately, this is not an isolated case, only in so far as it is the less excusable by reason of the prominence of the official and the consequently increased danger of a following. Indeed, this is already manifest by the action of his immediate successor, who has, for professedly economic reasons, just vetoed an appropriation for completing the repairs which his predecessor was driven to undertake by Mayor Hewitt and others of New York, when the amount asked for by the quarantine commissioners to complete the work would have increased the State tax *per capita* only *the sixth of one cent*.

The functions of the Health Officer of the port of New York, as with that of every other port health officer in the United States, end with each case as it arises, while the recurrence of cases is continuous, a constant tax upon the port and the State, a menace to the public health, and an unmitigated burden to commerce.

Twenty-eight years ago, at the meeting of this Association, at Boston, in 1865, I submitted a brief paper on the Introduction of Disease by Commerce. We have learned a good deal about the etiology of some commercial diseases since that time, but nothing to gainsay the force of the illustration then given, particularly with regard to yellow-fever, which is a constant menace to the southern section of our country, or of the pertinence of other infectious diseases introduced by commerce.

But that paper was evidently premature. And for that reason, fortified as it now is by increased observation and more general knowledge on the subject, an abstract of it is deemed appropriate to this occasion, as follows :

“ Since yellow-fever appeared in the Brazils, about sixteen years ago” (it has now been forty-four), “ it has extended over the entire Gulf of Mexico, the West Indies, and to most of the Southern States, and finally to the Pacific Coast. But all the while it has clung with remarkable tenacity to regions and localities remarkable for general resemblance—for the time being, at least—in local and climatological conditions.

“ In 1851-52 the harbor of Rio Janeiro was crowded with infected vessels, many of them destined for the Pacific. How many of them arrived there still infected, and touched at places where yellow-fever soon after for the first time pre-

vailed, we have no means of knowing. But a few have been traced.

“About the middle of the year 1851 the steamer *New World*, on her way to California, touched at Callao after having lost almost her whole crew by yellow-fever in Rio. The steamer *Quito* also, during the same season, lost several of her crew there, proceeded to the Pacific, and arrived at Callao in April, 1852. Soon thereafter a mild form of fever broke out in Lima and along the coast of Peru, which the natives called ‘pelusa,’ just as in 1849 the precursory form of fever which prevailed in Rio was called ‘polka.’ The disease speedily developed into a perfect type of yellow-fever, and has become domiciled.

“June 6th, 1855, the steamer *Ben Franklin* arrived at Norfolk, Va., from St. Thomas, where she had lain several months during the prevalence of yellow-fever, and had lost several of her crew with the disease, and had also lost two or three more with it on the voyage to Norfolk; but at the time of her arrival she had no one on board sick with it. On July 5th, a man, who had been working on the boiler of the *Ben Franklin* two days before, was taken with yellow-fever, and died on the fourth day of the disease. This was the starting point of the fever, which subsequently prevailed so extensively at Portsmouth and Norfolk until the beginning of cold weather.

“Early in December, 1857, the U. S. Steamer *Susquehanna* arrived at San Juan de Nicaragua from the Mediterranean two months before, touching by the way at Genoa, Madeira, and Key West. She remained at San Juan until the first of the following April, having had during the whole time she laid there a constantly increasing sick list of a precursory fever. At first intermittent, then remittent, but all recovering until March 20th, when a case became malignant and died.

“The ship put to sea April 1st, and on the 5th arrived off Port Royal, Jamaica, with 106 officers and men down with yellow-fever. Most of these were sent to the hospital, and on the third day afterward the ship sailed for New York, where she arrived April 15th, with 51 on the sick list.”

The remarkable feature in the case of the *Susquehanna* was that, at San Juan, where the yellow-fever first broke out on board, there was no yellow-fever at that place, and the disease

had never been known to occur there. Moreover, the *Susquehanna* had been more than two years on service in the Mediterranean without having had any extraordinary sickness on board when she was ordered to San Juan de Nicaragua ; but she had had yellow-fever on board during her preceding cruise in the Gulf Squadron the summer before she was ordered to the Mediterranean, three years before. She was supposed to have been cleansed before she was so ordered, and owing to the unpredisposing conditions of the climate during the interval and while she remained on the Mediterranean station, to the revival of the yellow-fever infection, which, as the sequel shows, she still retained until she returned to the conditions of the yellow-fever habitat at the port of San Juan de Nicaragua.

It is contended by those who persist in their endeavors to elude every restriction upon commerce in disease by foul vessels, that there have been such improvements in ship architecture during recent years as to have well-nigh overcome such conditions as those cited. They would have us believe that because the modern iron ships and water ballast, which have taken the place of wood and stone, are more easily kept clean, they are less liable to infection than the ships of a past generation. But the continued and more certain propagation of epidemic diseases by commerce, and by emigrant ships particularly, is conclusive testimony against that contention. Indeed, admitting the improvements with regard to the passenger-carrying capacity of emigrant ships, such improvements are not infrequently found to be very decidedly in conflict with the health of the passengers, and no less dangerous to ports of arrival than were the passenger and traffic vessels of a past generation.

All sanitarians are more or less familiar with the conditions promotive of disease comprised within the tenement walls of brick vertically and longitudinally divided into compartments by hallways and partitions, pierced here and there with doors for ingress and egress, and provided with windows for light and some fresh air—by shaft or otherwise—from pavement to roof, though ever so much overcrowded. And in civilized communities everywhere the misery of people who, through poverty or other causes, occupy such unhealthful

tenements, has never failed to excite public sympathy ; inso-much, indeed, that in some communities, in Glasgow, for example, whole blocks of such tenements have been destroyed by national law * and healthful tenements substituted, with the result of reducing the death-rate among those who occupied them from 70 to 24 per 1000.

But not so by any means with regard to the iron tenements afloat, with their several submerged floors and apartments—a basement twenty feet below the water-level, with a filthy, stagnant sewer of bilge water beneath it, without a window for light or air nearer than thirty feet above the sewer, and no opening for egress or ingress except through the roof-deck, and this deck not infrequently converted into a pound for cattle. The intervening deck between the cattle pen and the steerage for emigrants is commonly divided into compartments for the mails and storage. The required air space in the steerage by law † is from 100 to 120 cubic feet per capita.

Below the steerage is the hold for cargo, dark and airless, except by the ekeage of the foul gases into it from the bilge, which contributes more or less foulness to the cargo according to the tightness or otherwise of the ship's lining between and the nature of the cargo.

Surely it is no wonder that such tenements afloat, with no sanitary surveillance worthy of the name, should become the hatcheries of typhus-fever and other infectious and communicable diseases. The *Massilia*, by which typhus-fever was introduced into New York in January last, is an example. Five years ago, at the meeting of this Association in Chicago, I made a report on "Medical and Sanitary Service on Board Immigrant Passenger Vessels," containing a computation of the death-rate of 27,157 emigrants who took passage to New York during the month of April, 1887. Forty-one died on the voyage—an annual rate of over 55 per 1000, giving ten days as the average duration of the time the passengers were on board ship. The mortality was not particularly excessive for that month, and it is not believed to be in excess of the present rate.

* English Acts of Parliament, 1866-71.

† Acts of Congress, 1882 and 1887.

It is the misfortune of the New York quarantine that no record of the history of infected vessels has been kept; the health officers seem to have regarded their records as personal property, and have taken them away with them. Indeed, in their published official reports even the names of infected vessels are rarely given except incidentally. The report for 1891 is an exception—at least with regard to emigrant ships. But gleaning such records as I have been able to obtain, covering the last five years, there is no difficulty in designating some of the emigrant ships as rounders with regard to their liability to infectious diseases, indicating a continuous state of receptivity. The *Alesia*, which brought cholera to quarantine in 1887, is an example. She brought small-pox twice in 1888, twice in 1890, and she has recently arrived with measles. There are several other repeaters within the same period, of two or three times each. And Dr. William M. Smith, who has occupied the post for nearly twelve years—recently relieved—informs me, with regard to yellow-fever particularly, his recollection is that the disease was remarkably persistent year after year to certain vessels during the early years of his service. His report for 1889 contains this remarkable statement :

“ The fact is worthy of special consideration, as illustrating the efficiency of the system adopted at this quarantine for an exclusion of yellow-fever, that in no instance has the disease occurred among the passengers or crew of vessels from ports known to be infected ports; the cases that have arrived were from localities where the disease was not known to exist, and on vessels that carried clean bills of health.”

It would be difficult to adduce clearer evidence than this of the persistence of ship infection and its danger, even when not directly from infected ports.

That such infected conditions of merchant vessels are no less common now than they were thirty years ago, it is only necessary to call attention to the outbreaks of yellow-fever continually occurring on board vessels in frequent communication with Rio, Santos, Guayaquil, and other yellow-fever ports, in commercial intercourse with the seaports of the United States.

What is said with regard to the persistence of the yellow-fever infection in such vessels also applies to other infections.

and the recurring outbreaks of infectious disease on board emigrant ships—they are not disinfected.

My opinion, with regard to efficient disinfection and the means of applying it, is sufficiently well known to require no repetition in this place. It will suffice to state that while *steam* is everywhere acknowledged to be the most efficient of all means, it is still, so far as I am informed, unused for the disinfection of vessels at our quarantine stations. At the New York establishment it has been used twice—first to the U. S. transport steamship *Delaware*, infected with yellow-fever in 1862 ; and second, to the emigrant steamship *Britannia*, infected with cholera in 1887—in both instances in accordance with my advice, and with complete success.

Moreover, from all I have been able to learn of common practice in the premises, no attempt is made to apply such disinfectants as are used to the bilge—the breeding place of infective germs—and but rarely to the hold. The masters of infected emigrant ships have been *directed*, after permission to go to the wharves of the city and removing cargo, to disinfect the hold with sulphur or chlorine, and to wash with mercuric-bichloride solution ; but I have not been able to find any one who has seen this done—even if it ever has been done. Is there any one who appreciates the by no means overwrought description I have attempted to give of a modern emigrant ship, who thinks that the dark and close recesses and crevices more or less common to all vessels, the special lurking places of disease germs, are ever penetrated by such means ; or that the filthy paste composted by the motions of the ship, of the leakage at yellow-fever ports and bilge water with which the limbers of vessels are plastered from the keelson to the deck are ever reached by the bichloride or any other solution, or by any fumes evolved in the hold, without exposing the limbers ?

But I am gratified at being able to state that Dr. William T. Jenkins, the recently appointed Health Officer at the port of New York, promises the speedy application of steam to infected vessels, by which means, at a sufficient temperature to kill all disease germs without injury to the vessel, disinfection may be effectually accomplished.

While the recent laws of France and Germany against the importation of American pork obtained, no American ship

laden with pork was cleared for those countries. Would it be a greater burden on France or Germany to prohibit the exportation of typhus or any other like dangerous disease thence to the United States than was the prohibition of pork from America? The solution of the question requires no argument, and it applies equally to all other countries.

The port health officers of the United States, and the Health Officer of the port of New York in particular, with regard to emigrant ships, are our sole reliance; they are assumed to possess ample power for the prevention of the introduction of epidemic diseases from abroad. But so long as emigrant ships are permitted to receive passengers and their luggage without restriction; vessels known to be infected with cholera, or to have merchandise suspected of cholera infection, refused entry at English ports, but given "clean" bills of health to proceed to American ports; merchant ships to receive any sort of merchandise at the tropical ports of South America and the West Indies where yellow-fever obtains, and clear for American ports without credible bills of health—so long as any of these conditions obtain, and so long as there is no intelligent and reliable sanitary inspection at the *ports of departure*, and for *emigrant ships*, no competent sanitary supervision *during the voyage*, just so long will the people of the United States be subject to epidemics imported from abroad.

Every person acquainted with the construction of sea-going vessels, and with knowledge of the practices of those who command them, knows that it is often wholly impracticable, under the wilful deceptions that commonly obtain among the masters and medical officers of emigrant ships, and the clearance conditions of merchant vessels generally, for health officers to obtain reliable information with regard to infectious diseases at foreign ports; the sanitary condition of the vessels at the time of clearing; their previous condition—whether recently infected or not—or the nature of any diseases that may have occurred during the voyage. Indeed, the present state of conducting commerce in epidemic diseases, by which they are so carefully concealed by those who set more value upon dollars than upon human life, is such that it is frequently altogether impracticable for the port health officer to discover their hiding-places.

The only way of meeting and overcoming these dangerous conditions to the health of the people is by efficient *international* regulations, and a necessary prelude to these is a *national health service*—a service such as that contemplated by the bill of Senator Harris for a National Board of Health, introduced in the Senate, December 10th, 1891.

As compared with other proposed national legislation with the same object in view :

It provides for a competent *personnel* in the organization of the Board ; the utilization of the consular service of the United States as means of information ; the Naval and Marine Hospital services ; co-operation with State and municipal authorities ; voluntary public and private associations—in short, with all sources of information relating to climatic and other conditions affecting the public health. While it makes it unlawful for any merchant ship or vessel from any foreign port to clear for any port of the United States except under clearly defined regulations for the protection of the public health, it respects the right and obligations of foreign nations to practise sanitation at the ports of departure, and—with regard to emigrant ships particularly—during the voyage. It provides against such cases as the one cited—the action of the Health Officer of Perth Amboy against the quarantine regulations of New York. It offers aid to all sanitary authorities in the United States, when required, to prevent the introduction of, and to seek out and destroy epidemic diseases and the conditions which promote them. There is no need of pursuing the excellent provisions of this bill in further detail. I prefer to take it for granted that every member of the Section has made himself familiar with it.

One important deficiency, however, is apparent. While it provides for and exacts practical sanitation by the rightful authorities at ports of departure of foreign nations, it exacts none at our own ports ; it leaves the clearance of vessels, emigrant or otherwise, proved to be infected—as was the *Massilia*—at the discretion of those who command them. A clean bill of health can be obtained from the port in such cases in the absence of prevailing epidemic disease in the city, yet the *ship* may be dangerously foul. To fill the bill, in this particular, the Government is already adequately equipped—it only needs de-

tail. The United States Marine Hospital Service has, in default of international legislation (contemplated by Senator Harris's bill), done some excellent work through the courtesy of foreign nations—particularly at the port of Havana—to prevent the transmission of epidemic diseases hither. And, apparently, with the purpose of continued reliance upon the service of its medical officers in foreign ports, by courtesy, a bill is now before Congress to that end. But surely it must be well known to all persons conversant with the exclusive rights and practice of foreign nations, that such sanitary service is essentially unstable, ever liable to conflict with the sanitary authorities at ports of departure, and cannot be relied upon to prohibit the departure of an infected ship. The Marine Hospital Service is out of its sphere in this direction, while there is an open field for its labors in another, if the United States would set the example by practising its own precepts—would see to it that the condition of every *vessel*, before she is permitted to receive cargo, is *clean* in a sanitary sense, and not at the mere voice of her master.

Surely it would be difficult to designate a more inviting field of labor—certainly none more germane to all that pertains to the health of mariners—than this for the Marine Hospital Service.

With such co-operation as this suggestion contemplates, under the auspices of a national board of health as provided for in Senator Harris's bill, and the international sanitary service which it would then be certain to secure, the transmission of epidemic diseases by commerce would speedily cease.—*Journal of the American Medical Association.*

REPAREE.—It is said of a certain literary woman that she is never at a loss for a reply, and never misses an opportunity to say a bright thing. One day a friend was describing to her a noted artist, about whom her curiosity had been greatly aroused, but whom she had never seen. "To begin with," remarked the friend, "he has a perfect Niagara of a forehead!" "What?" said the other. "Do you mean to tell me the poor man has a cataract over both eyes?"—*Homœopathic News.*

ERRORS IN VENTILATION.—NO. 2.

By WILLIAM HENRY THAYER, M.D., Brooklyn, N. Y.

I HAVE received many communications from different parts of the country, almost all expressing approval of the statements in the paper on "Errors in Ventilation" in the April number of THE SANITARIAN, and gratification that public attention was called to the subject.

Only three of my correspondents are inclined, for various reasons, to favor the withdrawal of used-up air from the lower part of the room. One of them writes: ". . . In winter the air supplied to the school-room must be warm. Heated air diffuses slowly, rising immediately to the ceiling when introduced into the room. If your exhausts are at the ceiling, this volume of warm fresh air will be lost, and the coldest air will remain in the room. Under such conditions, how will you warm the room?"

To him I replied: "I have never discovered in any rooms that had the escape for foul air in the upper part of the room any of the difficulty you suggest. If the ~~inlets~~ for warm air in or near the floor are large enough to admit a great volume at a temperature not many degrees above blood-heat—as they should be—the room is thoroughly and equally warmed. The hall of the Brooklyn Institute, which I gave as a good example, was faultless in its atmosphere in regard to temperature and purity. The inlets and outlets should be properly proportioned in size, and the results will be agreeable. If all the air admitted to the room is warmed, there will be no cold residuum for the lower part of it."

To another correspondent, who, agreeing with the principles I had advocated, still thought that public rooms might be successfully ventilated by outlets near the floor, I wrote: "I think we should agree about the necessities in the ventilation of buildings—that there must be an ample supply of pure air from the outside, forced or made sure, and a free passage

outward for the foul air. If the outward passage is in the ceiling, the foul air will not need artificial aid for its escape. If the place of exit is near the floor, a motive power will be needed to carry it off ; and the room may be perfectly ventilated in that way, if the motive power is of adequate force, and the supply of pure air admitted in sufficient quantity. But I do not understand the object of carrying off the foul air at the level of the floor. What is gained over ventilation through the ceiling? It cannot be claimed that you save more heat ; for if the outward current is strong enough to purify the room, there will be as great a discharge of warm air at the lower openings, as if it passed out through the ceiling without artificial aid.

“ I think the erroneous belief that the air which is surcharged with carbon dioxide falls to the floor, and produces an excess of the dioxide there, still lingers in the minds of those who propose to ventilate from the lower part of the room.”

The third correspondent, an eminent sanitarian, writes that he prefers ventilation near the floor, to insure the carrying off of disease germs. He evidently believes that the germs of specific diseases settle to the floor by their weight. To allow these microscopic objects, almost imponderable, to be deposited on the floor or in the lower part of the room, is to suppose the entire absence of all atmospheric currents—to imagine rooms totally devoid of all opportunities for ventilation. With proper inlets and outlets, all germs of disease would be thoroughly removed, and have no opportunity to settle to the floor ; and, removed into the pure outer air, they do not multiply, but die. Oxygen, as all physicians know, is a perfect disinfectant.

A personal experience in 1863, in Washington, D. C., is strikingly illustrative of the complete removal and disinfection of the germs of a specific disease by free ventilation. My regimental hospital in Gales's Woods was composed of three hospital tents, pitched together so as to make one tent 48 feet in length, and accommodating 24 patients. It was raised upon a skeleton frame, and with a board floor 18 inches above the ground. During the summer the canvas sides were rolled up completely, and never lowered, so that the tent was entirely open all around. In June a patient with diphtheria was

brought in, and from that time till winter there was no time when there was not at least one case of this disease in the hospital—there being twelve cases there during five months. The beds were all occupied with sick men, but no one in the hospital contracted the disease. In November, the onset of cold weather obliged us to let down the sides of the tent. In the course of the month the disease attacked a number of the patients in the hospital, making it necessary to remove to general hospital all those who had already escaped the infection, and admit no more. But for five months, in out-door air, the diphtheric and other patients had lain in contiguous beds, not two feet apart, without a single case of infection within the tent. This complete ventilation proved a perfect disinfectant—as has been shown in many other instances, but never more convincingly than in this case.

Since the publication of the April number of *THE SANITARIAN*, I have examined the warming and ventilating arrangements in St. Ann's Church, in Brooklyn, of whose atmosphere Dr. Bartley made an analysis. I went there just before a forenoon service, when the house might be expected to have the best atmosphere. The air was offensive to the sense of smell, as if it had been at the close of service, in a crowded house without ventilation.

On investigation, it appeared that no air was admitted to the building, except what might enter while the doors were open. I was informed that there were flues for admitting fresh air at the east end. I looked for the openings of these fresh-air flues on the outside of the church, and found four openings near the ground, each about twelve inches square; but they were all carefully closed, by Canton flannel nailed over them! I discovered that the flues from these openings extended to the risers of the chancel steps, with openings there; so that, before they were closed, strong currents of cold air were doubtless discharged in the faces of the occupants of the front pews. The air was evidently shut off as a nuisance, by covering the openings on the outside.

The excessive foulness of the air was thus accounted for; the outlet flues carry little off, for there is no fresh air to take its place, except what enters while the church-doors are open. We cannot draw air out of a room if we do not provide an

inlet for a new supply. I went into the tower—which, by the way, is heated by steam pipes and not by gas, as stated incorrectly in my April paper—and found no current flowing out of the great ventilating pipe that opens from the church. How could there be an outward current, if no air entered the building from the outside? It is not strange that its atmosphere, as analyzed by Dr. Bartley, was fouler than that of any of the numerous halls examined by Dr. R. C. Stiles in 1869. The strange and sad part of it, is, that a congregation could endure this state of things for twenty years, without complaint or investigation. One cannot easily overestimate the criminality of such arrangements, inevitably undermining the health of so many people.

THE ADULTERATION OF WINE.

By T. P. CORBALLY, A.M., M.D.

WINE is now said to be frequently adulterated by the introduction of strontium. By a review of the subject in the *Bulletin des Conseils d'Hygiène*, reproduced in the *Journal d'Hygiène*, the reader is reminded that the animated discussions which took place in the Academy of Medicine on the use of strontium as an adulterant of wine, has not lost any of its importance. At the suggestion of M. Girard, chief of the Municipal Laboratory, the subject has been recently brought before the Council of Public Hygiene of the Department of the Seine, and placed in the hands of M. Alfred Riche for special examination.

The practice of adulterating wine, which may be traced back into remote antiquity, did not become extensive until the year 1849; in 1852 it became very general in the south of France, and it was not unusual to introduce three, four, and even five grammes of sulphate of potassium into a litre of wine.

Public opinion soon became aroused to the danger of this practice, and the *Comité Consultatif d'Hygiène Publique* adopted, in 1879, the following two conclusions, taken from the report of M. Legouest :

1. The absolute freedom of adulterated wines from danger to the consumer ought not to be officially admitted.

2. The presence of sulphate of potash, whatever may be its origin, should never be allowed beyond the maximum limit of two grammes to the litre.

Official instructions, issued at different times, have confirmed this principle ; but it was only on July 11th last that a general law regarding the purity of wine was promulgated, the third article of which is as follows :

“ It is forbidden to offer for sale or to deliver adulterated wines containing more than two grammes of sulphate of potassium or of sodium to the litre, and all violations of this law will be punished by a fine of 16 to 300 francs, and by imprisonment for a term of six days to three months, or by either of these penalties, according to the circumstances.”

However, wine dealers had already made their purchases of adulterated wines, as on preceding years. The merchants and the wine-growers then tried to avoid the law by removing the adulterating agent from the wine, and a new industry was then created. This consisted in the employment of barium, says the report of the Conseil d'Hygiène, and was suggested in consequence of the insolubility of the sulphate of barium, and the chloride, the carbonate and the tartrate of the metal were sometimes used. But these salts are extremely poisonous ; a few milligrammes of the chloride of barium has on the economy a most dangerous effect, resembling that of strychnine, and it became necessary to abandon their use.

The substitution of strontium for barium was, under such circumstances, natural, and, consequently, the different salts of this metal were successively tried, and the result was the use of the sulphate. The sulphate of strontium is precipitated, and there remains the tartrate of potassium. In proceeding under such conditions, the wine might be restored to what it was before the adulteration, except that a minimum quantity of the sulphate of strontium necessarily remains, because the sulphate of barium is not absolutely insoluble.

Under such conditions, a very important question arises : Are strontium and its salts, in such quantities, poisonous ? The greater number of authors who have studied the subject have

decided in the negative. Foureroy, Gay-Lussac, Cadet, Bouillon, Lagrange, Lougier, Thompson, not to mention many others among the most eminent authorities, consider strontium as absolutely free from danger, and differing, in that respect, from barium, which is very poisonous.

M. Laborde, of the Academy of Medicine, has undertaken lately to resume the experimental study of the action of the salts of strontium on the organism. The experiments were first made on different animals, then on himself, and lastly on other persons; they have led him to conclude, not only that the salts of strontium are free from toxic properties, but that they seem to have a beneficial effect on the nutrition.

Notwithstanding the great value and the entire trustworthiness of these observations, M. Alfred Riche, considering that wine adulterated with strontium may, in the opinion of M. Ch. Girard, contain 0.036 of a gramme of strontium to the litre, and that it is the tartrate of strontium that is used for that purpose, is afraid that the prolonged and constant use of such a wine might cause some trouble in certain temperaments or under certain conditions of the system.

Although in nature, he says, the mineral strontium is not usually found united with barium, it is not impossible that the salts of strontium found in commerce may contain small quantities of the salts of barium, in which case very grave accidents might arise, and it would be very difficult to trace its course.

But, apart from these considerations, M. Riche thinks that it is necessary to prohibit the use of the salts of strontium in wine, if only to antagonize the tendency to change and adulterate the natural products used as food and beverage.

Even admitting that these changes are without injurious results to health, the adulteration is a cause of the depreciation in value of such substances.

In this special case, wine represents a very considerable proportion of the export articles of France, and it is of the greatest importance that people remain convinced that these wines are natural products and not mixtures, more or less artificial.

In the discussion which followed the reading of the report of M. Riche, M. Armand-Gautier, as might be expected,

warmly supported the conclusions of the report. According to him it is difficult to obtain pure preparations of the salts of strontium, and it will be much more difficult to obtain a pure article in commerce.

As soon as it becomes necessary to produce this article in great quantities, it will be imperfectly purified, for it is not generally known how difficult it is to separate small quantities of baryta, or even to determine its presence in the salts of strontium. But the salts of barium are exceedingly poisonous; in some persons five milligrammes produce very serious results; ten milligrammes are a very dangerous dose in most cases, especially when the stomach does not contain the sulphate. "And," it is asked, "is the sulphate of baryta poisonous, notwithstanding its insolubility!"

M. Dujardin-Beaumetz has very justly observed that the salts of strontium are now employed in therapeutics; and if it be true that all is sold in the market contains baryta, it will be indispensable to know if there be any simple and practical means of determining the presence of that substance.

To this question M. Jungfleisch replied that the usefulness of different reagents capable of determining the presence of strontium have been examined in an article recently published in the *Zeitschrift für Analytische Chemie* of Fresenius. The chromate of potash, used in a liquid form, and acidulated and heated, constitutes, according to the author of the article, the most delicate reagent for common use.

The following addition was made to the above report:

The Academy of Sciences, at the session held January 25th last, approved the decision of the Conseil d'Hygiène, after listening to a report presented by a committee composed of MM. Berthelot, Gautier, and Duclaux. The wholesale wine and spirit merchants of the Chamber of Commerce of Paris had consulted the Academy in regard to the use of the salts of strontium in the adulteration of wine.

M. Duclaux, relying on the same arguments advanced by M. Riche, pronounced in favor of the interdiction.

"On principle," he says, "it may be said that wine, being a natural product, every addition to it of a chemical substance should be considered a falsification, especially when such addition is intended to be masked and added to preserve in

the wine its natural external appearance, and thus to prevent the buyer from judging correctly of the real nature of the article sold to him."

So much for the objections on principle. Examining the question of fact and the disadvantages of the use of strontium as such, M. Duclaux has serious objections.

From the fact that strontium may be absorbed into the system without danger, we must not conclude that it will pass as an inert substance when absorbed daily and in considerable quantities, as it frequently is in wine. Even if harmless for the majority of wine-drinkers, strontium might be very injurious to some whose system, due to peculiarity of temperament, to individual predisposition or to pre-existing disease, would be rendered more susceptible to its action.

Finally, all the salts of strontium, with which the physiological experiments have been made, were pure and free from other more dangerous substances; but when it is prepared for general use, its purity can no longer be relied on.

What is especially to be feared is the presence of the salts of baryta in the preparations of strontium, because of their activity as poisons and of the difficulty of determining their presence. The danger lies in delivering great quantities of the tartrate of strontium to vineyards, merchants, and tradespeople, who are always tempted to buy the cheapest article, and consequently run the risk of buying an impure salt without the ability to determine its quality.

For these various reasons the Commission of the Académie des Sciences has replied to the president of the body of wine merchants who are members of the Chamber of Commerce, that the Academy cannot give its approval to the use of the salts of strontium, in the *plâtrage* of wine, and that it condemns such practice.

The conclusions proposed in the report of M. Duclaux, being put to a vote, were adopted.

The use of strontium in wine is, therefore, definitely condemned by the Academy of Medicine, by the Conseil d'Hygiène of the Department of the Seine, and by the Academy of Sciences.

THE NEW YORK QUARANTINE.

ABSTRACT OF THE REPORT OF THE HEALTH OFFICER FOR 1891.

THE number of vessels from foreign ports inspected during the year was 5590.

From domestic ports south of Cape Henlopen there were 1867 vessels given *pratique* between April 30th and November 1st.

The number of vessels inspected in 1890 was 5758 ; this is 168 more than the number inspected in 1891.

The number of foreign vessels inspected from January 1st to September 1st, 1890, was much greater than the number inspected during the same period in 1891.

Vessels from domestic ports inspected were 25 in excess of those made in 1890.

The number of immigrants from transatlantic ports inspected during the year was 445,290.

The number of cabin passengers arriving during the same period was 105,023.

The total number of immigrants that have been inspected at the New York Quarantine since January 1st, 1880, is 4,455,690 ; an average annually for the twelve years past of 371,307. There were 73,697 more immigrants inspected in 1891 than in 1890.

The number of cases of small-pox taken from vessels was 17.

Of yellow-fever there has not been a case admitted to hospital or found on incoming vessels during the year. Indeed, there has not been a patient admitted to the Swinburne Island Hospital since October, 1889. Such an exemption from the diseases to which that hospital is devoted has not previously occurred during the nearly twelve years of the present Health Officer's administration. This is exceptional in the whole history of the New York Quarantine. It is not believed to be accidental, but attributable to the management to which I

have referred in previous reports, though its results have never been so conspicuous and satisfactory as during the past year. A single sentence will describe the measures and management which have secured these results, namely, the quarantine of vessels has begun at the port of departure. In other words, vessels that ply between New York and yellow-fever-infected ports, or that touch at such ports, are required to take their cargoes at a distance from the wharves, and persons on board, except the master and executive officer, are prevented from going ashore at such ports under penalty of detention or the expense of discharging cargo "in quarantine" on arrival at the port of New York.

Section 6 of chapter 534 of the Laws of 1865 declares that "all such quarantinable diseases except yellow-fever, cholera, and typhus-fever and small-pox shall be removed to the emigration hospital, Castle Garden or Ward's Island." Castle Garden and Ward's Island ceased to exist April 19th, 1889, as an *entrepot* for immigrants, and as a hospital for their care and treatment. The reception hospital for immigrants at the "barge office," under charge of the Federal Government, has taken the place of the reception hospital at Castle Garden. The sick of scarlatina, diphtheria, and measles have been received at the reception hospital at the barge office, as the sick of those diseases were at Castle Garden under the administration of the State commissioners. From the reception hospital the State commissioners removed the immigrants sick of contagious, as other diseases were, to a well-equipped and extensive hospital on Ward's Island.

The State law requires the Commissioners of Emigration to receive into their hospitals all alien passengers for whom bonds have been given or commutation paid at the port of New York, who shall have been affected with any contagious or infectious diseases other than yellow-fever, and sent to such hospital by the authority of the Health Officer. They shall defray the expenses of such patients *out of the moneys received by them on account of bonds or commutation.*

The necessity of more liberal accommodations for immigrants sick of contagious as well as other diseases than the reception hospital at the barge office afforded was apparent from the first; and it is believed that the hospital at Ellis

Island will be inadequate for the proper isolation of the sick of the contagious diseases mentioned, and the accommodation necessary for the care and treatment of immigrants who are ill of non-contagious diseases. Thus far the federal authorities have arranged with the New York City Board of Health for the care of contagious diseases other than small-pox, at a *per diem* cost for each person of \$1.50, and, in case of death, the payment of a stipulated sum to defray the expense of burial. The sick of non-contagious diseases are accommodated at the Long Island College Hospital at an average *per diem* cost of \$1.39.

The medical officer of the federal emigration department at this port, Dr. J. A. Tonner, desired to be relieved of the difficulty which the care of the sick of the several contagious diseases referred to caused, and to have them removed from the steamers or other vessels to the Quarantine Hospital.

There are several insurmountable objections to this under present circumstances. First. The law declares that such quarantinable diseases as scarlatina, diphtheria, and measles "shall be removed to the Emigration Hospital." Second. The expense of providing for the sick of the diseases named at the Quarantine Hospital would be greatly in excess of what it is at such a hospital as the New York Contagious Hospital, where a corps of nurses and a resident physician are already employed.

During the three months ending December 31st, 1891, 85 immigrants sick of the diseases mentioned have been received at the Riverside Hospital, being an average of 25 each month, at a *per diem* cost of \$1.50.

To properly care for and isolate the sick at the Quarantine Hospital would require one resident physician at the Swinburne Island Hospital in addition to the deputies, whom the Health Officer is now authorized to appoint, at a monthly salary of not less than \$150.

Physician's salary.....	\$150.00
The salary of the nurse for the scarlatina ward..	50.00
The salary of the nurse for diphtheria ward.....	50.00
The salary of nurse for measles ward.....	50.00
<hr/>	
Total per month.....	\$300.00

Add to this \$2 *per diem* charge for maintenance by the superintendent of the hospital under a regulation made by the Commissioners of Quarantine, and the sum amounts to \$950 per month, equal to \$31.66 per day.

The resources of the Quarantine department from the collections made under the present law are wholly inadequate to defray such additional expense of the hospital. The Quarantine Commissioners have neither the money from any appropriation by the State for such a purpose nor the authority under the law to incur the necessary expense. The owners and agents of vessels from which the cases are removed will not be willing to pay the charges necessary to sustain the hospital, in view of the fact that the law requires that they "shall be removed to the Emigration Hospital," where the cost will not be nearly so great as at the Quarantine Hospital. Nor is it right that either they or the State of New York should pay the expense of the care and maintenance of the sick of these contagious diseases.

The Federal Government collects of the passenger steamship companies a *per capita* tax of fifty cents on every immigrant whom they bring to the port of New York. As previously stated, under the State law, the emigration commissioners were required to "receive into their hospital all alien immigrants for whom the commutation" or *per capita* tax had been paid. The tax was designed to pay the expense incurred in the care and maintenance of sick and disabled immigrants.

The Health Officer removes cases of small-pox at Quarantine to the Riverside Hospital (formerly at Blackwell's Island), under section 24 of the laws of 1863. The city of New York is entitled to compensation for the care and maintenance of these cases. The State formerly under the commutation law, and the Federal Government at present, collects the tax on all immigrants that are removed at Quarantine to the Riverside Contagious Hospital; but the departments mentioned have, and still do refuse to pay bills rendered by the New York City Board of Health for the care of immigrants with small-pox sent to them from this Quarantine. It is difficult to understand on what principle of justice compensation is refused. If the cases of scarlatina, diphtheria, and measles

should be removed at Quarantine, it is presumed that in conformity with the precedent referred to, compensation for their care and maintenance would be denied by the emigration department.

It was in view of the fact that the emigration commissioners received fifty cents *per capita* from the transatlantic passenger lines, and in the belief that that tax was enacted by Congress for the purpose of meeting in part the expenses incurred in the care of sick immigrants, that the State law of 1885 was enacted requiring "all quarantinable diseases except yellow-fever, cholera, typhus-fever, and small-pox, to be removed to the Emigrant Hospital."

During the past year the number and character of these diseases, whether scarlatina, diphtheria, or measles, which were discovered on the inspection of the immigrants at Quarantine, and those in the steamer's hospital on arrival at Quarantine, were telegraphed from the boarding station to the physician of the immigrant hospital, so that the medical or other officers in charge of the barge or steamboat that transferred immigrants from the steamer to the emigration depot could continue the isolation of the sick during the transfer. On some occasions a trusted employé of this department has been sent to the steamer's dock to supervise the removal of the sick to the transfer barge, and thence to the Emigration Hospital.

The immigration through the port of New York in 1891 was largely in excess of the year previous, and is but 30,786 less than the greatest number during any year since the present extraordinary flood of immigration began to invade our country. Unless the civil authorities exercise greater care in the inspection of immigrants in relation to their sanitary, physical, and moral *status*, the country will in the near future be subjected to sanitary conditions, and social and political evils much worse than those which now exist among the populations of the old world.

With the exception of one case of typhus-fever, small-pox, scarlatina, diphtheria, and measles have been the only quarantinable diseases found on board vessels during the year.

The case of typhus-fever referred to occurred on the French steamship *La Bourgogne*, April 19th, 1891. The case was dis-

covered during the inspection of the steerage of the steamer. Reliable evidence was obtained that the patient had been ill several days and had not been discovered by the surgeon of the steamer. All the steerage passengers (796) were removed to Swinburne Island Hospital for observation, Hoffman Island being at the time occupied by 719 immigrants who were under observation on account of exposure to small-pox.

Twenty-seven hundred and thirty immigrants have been taken from vessels and detained for observation at Hoffman and Swinburne islands since my last report.

March 8th, 1891, the steamer *Obdam* arrived with 492 steerage passengers. One case of confluent small-pox was found in the steamer's hospital. The case had been early isolated in a hospital located under the turtle-back on the upper deck. In an adjoining room to the one occupied by the small-pox patient the surgeon had located two cases of measles; the members of the family of these patients, seven in number, were put in the room with the sick. The partition between the small-pox patient and the patients with the measles and their friends was so defective that it was considered very possible that the contagion of the case of small-pox had infected the immigrants in the adjoining hospital. The case of small-pox was removed to the Riverside Hospital, and the cases of measles to the Emigrant Hospital, and the other members of the family were detained for observation.

April 16th the steam yacht *Alva*, from Mediterranean ports, arrived with one of the crew (Hugh Halpin) sick with confluent small-pox. There was no isolation of the case. The patient was removed from the yacht, but died before he reached the hospital.

The crew was detained for observation on board the *Alva*. Ten days after arrival, James Pursell, another of the crew, was taken sick with the disease and sent to hospital. On April 30th the yacht and the remaining portion of the crew were discharged.

April 17th, 1891, the steamer *Fulda* arrived with 719 passengers in the steerage. One woman was found among the passengers suffering from small-pox in the third day of the development of the eruption. The medical officer of the steamer had no knowledge that there was a case of small-pox

on board. Two hundred and sixty-four of the passengers who had been vaccinated successfully by the steamer's doctor before the case of small-pox developed were sent to the emigrant depot in New York City. Four hundred and fifty-five of the passengers were removed to Hoffman Island for observation.

The number and source of the cases of small-pox were as follows :

NAME OF STEAMSHIP LINE.	Where from.	Number of Immigrants.	Cases of smallpox.
Hamburg-American Packet Company	Hamburg and Baltic....	81,025	1
North German Lloyd.....	Bremen.....	68,555	1
White Star Line.....	Liverpool.....	36,502	...
Red Star Line.....	Antwerp.....	35,870	2
Netherlands American Steam Nav. Co	Rotterdam and Amsterdam ..	34,531	1
Anchor.....	Glasgow and the Mediterranean.....	32,492	2
Cunard Line.....	Liverpool.....	27,341	...
Inman Line.....	Liverpool.....	26,111	...
General Transatlantic Company....	Havre.....	25,842	...
Guion Line.....	Liverpool.....	17,300	...
Fabre Line.....	Mediterranean.....	14,134	...
Compagnie Nationale de Navigation.	Mediterranean.....	9,111	2
Thingvall Line.....	Copenhagen.....	8,763	...
Florio Rubatino Line.....	Mediterranean.....	8,500	1
Allan-State Line.....	Glasgow.....	8,079	...
Union Line.....	Hamburg.....	5,795	...
National Line.....	Liverpool.....	2,594	...
Miscellaneous.....	Liverpool.....	2,745	1
Total.....		445,290	
<i>Vigilanca</i> , Rio de Janeiro and other Brazilian ports.....			1
<i>Seguranca</i> , Rio de Janeiro and other Brazilian ports.....			1
<i>Phidias</i> , Rio de Janeiro and other Brazilian ports.....			1
Bark <i>Subra</i> , Rio de Janeiro and other Brazilian ports.....			1
Steam Yacht <i>Alva</i> , from Mediterranean ports.....			2
Total.....			17

An unusual development of measles occurred among the immigrants on the steamship *Polynesia*, that arrived at Quarantine December 9th, twenty-one days from Hamburg. Twenty-seven cases of that disease and three of diphtheria

were found in the steamer's hospitals, besides several patients convalescent of the disease who had been discharged from hospital. The steamer's doctor had doubtless overlooked one or more cases that developed during the early days of the voyage, and these had infected many others. The length of the voyage had given time for the development of the contagion from the cases which had not been detected by the doctor of the steamer. The *Polynesia* has been unfortunate in the record it has made at the New York Quarantine. A few years since this steamer arrived with two cases of small-pox in hospital. There was reason to doubt the declaration of the medical officer of the steamer that the cases had been isolated in the initial stages of the disease. The passengers were therefore detained for observation. During the fourteen days they were under observation, 40 cases of small-pox were removed from the steamer to the Riverside Hospital.

YELLOW-FEVER.

Yellow-fever was epidemic in 1890 at Rio de Janeiro. During the latter part of 1891 and the early part of 1892 it has prevailed to an unusual extent at Santos. It extended to the shipping, and hundreds of victims were found among the crews of vessels lying in the port.

There have been 30 arrivals at this Quarantine of vessels from these Brazilian ports, which have given a history of sickness and death on board of this terrible disease, either while lying in port or within the first few days after their departure. Twenty-four deaths have occurred among the crews of these vessels from the disease, and there have been 46 cases which have recovered. The percentage of deaths evince a terrible malignancy in the type of the disease, or else the care and treatment of the victims were deplorably deficient in the methods and measures necessary for their recovery. An earnest effort has been made to have vessels that trade at these ports anchor at such a distance from the wharf that the infected atmosphere which prevails near them may not affect the people on board, and to have the cargo lightered from the wharf to the vessel, and thus minimize the danger of infecting the vessel from the dirt which is frequently taken on board with the cargo when it is taken directly from the dock.

The Health Officer has endeavored to impress upon masters, consignees and owners of vessels that trade with infected Brazilian ports, the danger of going to the dock of such ports, or of allowing their crews to go ashore. Notwithstanding the representations made to the parties mentioned, they have been less heeded than could be desired, as will be seen by the following statement of the recent experience of two of the steamers in the Brazilian trade.

In my report for 1890 I took occasion to express my regret that the "Passenger Act of 1882" did not direct that a qualified medical officer should be employed on all passenger steamers that run between New York and tropical or semi-tropical ports. I desire to repeat to some extent, in this report, my reasons for urging this measure upon the consideration of the owners and managers of all such lines, and to say that my conviction of its *necessity* becomes more apparent with increased experience and observation.

It is impossible in many instances in which deaths have occurred on board, at the port of departure, or on the voyage, to determine with certainty from the imperfect history given by the master of the vessel, or by the purser, whether or not the disease which caused the death was infectious or contagious. There is often so much uncertainty and doubt in the mind of the Medical Officer at Quarantine in many cases of this character, that he is liable to resort to unnecessarily restrictive and expensive measures in discharging his first duty, to protect the public health.

On such voyages as those from Mexican gulf ports *via* Havana, and from Santiago de Cuba *via* Nassau, a medical officer can do much to relieve the sufferings, and sometimes contribute to the preservation of the lives of the passengers.

This was well illustrated during the past summer by the sickness on board one of the steamers that runs to ports on the south side of Cuba. Five passengers of the steamer referred to were sick on arrival at Quarantine of "malarial-fever" of a remittent type. The condition of these patients was deplorable; for a week they had had no intelligent medical treatment, and even the nourishment which was essential to sustain their strength and contribute to their recovery had

been left to the caprice of sick men's inclinations. Two of these patients died in hospital, and a third at his own residence. Another not unimportant reason for the employment of a medical officer on steamers of this class is, that it not only insures some degree of intelligence in securing a proper sanitary condition of the steamer and treatment of the sick on board, whether of passengers or crew, but it affords the officers of the various departments into which the crew is divided a resource for determining the physical condition of the men of their division, for the discharge of the duties assigned them. A convincing argument of this character occurred recently in the experience of one of the most enterprising steamship companies at the port of New York.

A fireman on one of the company's steamers of this line complained to his chief that he was not able to take his turn of duty. The officer believed he was playing the "old soldier," and peremptorily ordered him to duty. The man died soon after going on duty and just as the steamer had reached the port of its destination. The physician on the staff of the United States consul determined that the man died of "heart disease." In consequence of this the company was subjected to a vexatious and expensive suit for damages. If there had been a medical officer on board the steamer he would have been "a court" of first and "last resort" in this instance, and would, perhaps, have saved a human life, at least for a time; and certainly would have saved the company from a suit at law for damages.

Since my last report the attention of the steamship companies that did not employ medical officers has been earnestly called to the necessity of doing so.

I am informed by the manager of the Cuba Mail Steamship Company that it is now supplying its steamers with medical officers as fast as competent and capable men are found. The steamships *Yumuri*, *Yucatan* and *Orizaba* are already supplied with medical officers.

The following table contains the names of the vessels, and the number of cases of yellow-fever on each, that have occurred while at the port of departure or on the voyage to this port since my last report :

LIST OF REPORTED CASES OF YELLOW-FEVER ON VESSELS ARRIVING AT THE PORT OF NEW YORK FOR THE YEAR 1891.

DATE.	Name.	From.	Number.
February 14..	Steamship <i>J. W. Taylor</i>	Brazilian ports.....	1
April 8.....	Steamship <i>Seguranca</i>	Brazilian ports.....	2
April 8.....	Steamship <i>Dryden</i>	Brazilian ports.....	7
April 15.....	Steamship <i>Garrick</i>	Brazilian ports.....	4
April 20.....	Steamship <i>Hogarth</i>	Brazilian ports.....	1
April 23.....	Steamship <i>Advance</i>	Brazilian ports.....	6
May 20.....	Steamship <i>Plato</i>	Brazilian ports.....	14
June 14.....	Steamship <i>Horrox</i>	Brazilian ports.....	3
June 21.....	Steamship <i>Clement</i>	Brazilian ports.....	1
June 26.....	Steamship <i>Humboldt</i>	Brazilian ports.....	9
July 25.....	Ship <i>Elizabeth</i>	Brazilian ports.....	1
October 24..	Steamship <i>Garrick</i>	Brazilian ports.....	3
November 12.	Steamship <i>Alliance</i>	Brazilian ports.....	3
November 13.	Schooner <i>Jennie Lena</i>	Brazilian ports.....	3
November 25.	Steamship <i>Vigilanca</i>	Brazilian ports.....	1
December 14..	Steamship <i>Advance</i>	Brazilian ports.....	9
December 27..	Steamship <i>Capua</i>	Brazilian ports.....	2
			70

I have taken occasion in my annual reports for several years past to recommend the repeal of the law which declares that the "hospital ship shall be located in the Lower Bay from May 1st to November 1st." It is illogical to require that a patient with a non-contagious disease should be removed from a vessel to hospital ten or twelve miles from the city of New York, and then bring the vessel which may be the source of the disease to discharge cargo within three miles of the city (at Robbins Reef), as was done for many years, and until 1886. It is unreasonable to require the Health Officer to cripple and embarrass himself in the discharge of his duties at the boarding station, by the detail of one of his deputies to the so-called "hospital ship" in the Lower Bay, when it does not contribute to protect the public health.

Twenty-seven hundred and thirty immigrants have been detained for observation at the islands during the past year. This is 2730 more than should have been, or would have been, had the medical officers of the steamers discharged their duties according to the suggestions made and urged upon their attention by the Health Officer at this port.

The average number of days that each immigrant was detained at the Quarantine of Observation was fourteen. The

total expense of this detention of these passengers was nearly or quite \$28,000.

This is a great price to pay for the services of a half dozen incompetent or neglectful medical officers. It is quite enough to secure competent and faithful officers, if equally divided and added to the amount of the present meagre salary of a ship's surgeon.

There is no greater need for improvement in the whole system of transatlantic steamship service than in the medical department.

The salary of the medical officer must be increased, to secure competent and faithful officers; he should be made independent of the gratuities upon which he often depends. On those lines that do not carry a considerable number of saloon passengers, the wages he receives are not greater than that of the ordinary "deck hand" in our harbor, notwithstanding that the responsibilities he assumes in the care of several hundred immigrants during every voyage to this port involve to a greater or less extent the protection of the public health, and the material interests of the steamship company by which he is employed.

The tenure of the medical officer under the present system is at the mercy of the company. It should be secure as against anything but proved incompetency or inefficiency. If the medical service of the mercantile marine is ever what it should be, the qualifications of the medical officer must be determined by a competent board of examiners, and if the appointee is discharged for any cause, his right to an appeal to the board which certified to his qualifications should be guaranteed.

The prospect of promotion with the increase of pay commensurate with the period of service and the ability of the officer, will secure those who will devote their life to the service, and their best energies to secure success in their chosen calling. Let the standard of qualification be raised if desirable, but increase the pay proportionately. There are many well-qualified, experienced and efficient surgeons on the transatlantic passenger steamers that enter this port. It is in no degree disparaging to such officers to say that there are other medical officers in the passenger steamship service who have

been found with commendable zeal isolating patients with syphilitic papulæ and chicken-pox, and others who could not distinguish between varioloid and varicella. In a majority of instances the doctor of a steamship when appointed has never seen a case of small-pox.

The medical officer of an immigrant passenger steamer should be something of an expert in the diagnosis of eruptive skin diseases. No better service could be rendered the managers of passenger steamship companies than to impress upon them the necessity of such a special preparation on the part of their medical officers as will enable them to diagnose correctly the contagious diseases which so frequently come hand in hand with immigrant passengers.

The immigration that has flowed like a resistless tide into this and other ports of the United States during the past year will continue. The nearly four and one half millions of immigrants that have passed into the country through the port of New York since January, 1880, will be increased by other millions within the same period. The political and economic conditions of the Old World communities will continue to drive the people forth, and our undeveloped expanse and liberal institutions will continue to attract them to our country.

Notwithstanding that the utmost liberality consistent with protection of the public health has been exercised in the detention of vessels at this Quarantine, the experience of the steamship companies at this port with incompetent and inefficient medical officers on their steamers, would seem to have been sufficient to determine them to adopt a system in the selection of such officers as would secure competent and efficient physicians.

CHOLERA.

Cholera has prevailed at several places in Asia Minor and at its home in India during the past year. A number of vessels that obtained cargo at cholera-infected ports have arrived during the year. Unremitting vigilance is necessary to prevent the cargoes from such ports communicating the infection to the populous communities adjacent to our port. It is often when least expected that the dread disease makes its appearance. When cholera arrived at the port of New York in 1887,

it had in the four years previous scourged Egypt, ravaged France and Italy, numbered more than a hundred thousand victims in Spain, invaded the eastern coast of South America at Rosario, crossed the Andes and decimated the population of the western coast of South America.

In the summer of 1887 the danger of its reaching this country seemed past. It still lingered in some localities in Spain and Italy. But the apprehension that it would reach our shores had almost ceased to exist when it appeared at the threshold of our port on the steamers *Alesia* and *Britannia*.

The half-completed, improperly equipped and long-neglected Quarantine of Observation at Hoffman Island, notwithstanding the repeated warnings of danger, and importunities of the Health Officer of the port to the State Government for aid, from the time the disease made its advent in Europe, has been referred to in the report of the Health Officer for 1887.

Had the New York Quarantine been prepared and equipped then as it now is, there would have been little occasion for anxiety on the part of the Quarantine officials, or the apprehension of the escape of the disease from the Quarantine islands which existed in the public mind during the detention of the cholera-infected immigrants; and there would have been no opportunity for the unjust and ungenerous criticism of the management of the cholera-infected immigrants from the *Alesia* and *Britannia* made by Dr. Shakespeare, of Philadelphia, in his report on the late cholera epidemic in Europe.

In the report referred to he takes occasion to refer to the cholera epidemic at the port of New York, as follows :

“ First. The absence of resident medical officers both at the hospital on Swinburne Island and at the Quarantine of Detention at Hoffman Island. Second. Absence of anything like an adequate sanitary police force on the latter island. Third. The absence of any effort to separate the well, detained on Hoffman Island, into small groups, and the lack of any proper daily systematic inspection such as would enable the authorities promptly to discover and isolate new cases. Fourth. The unreasonable detention for a period of nearly two months of more than 500 immigrants not sick, under circumstances of great hardship, exposure and privation ; a fact

which, in view of the present state of knowledge in regard to the nature and mode of transmission of the infectious principle of cholera, in itself bears overwhelming testimony to faulty administration. And this was the situation after cholera had continued to prevail in countries, the ports of which were in constant communication with New York for a period of some four years, and after the entire public press of the United States had persistently called attention to the ever-present danger of its reaching our shores."

The above criticism is in part a rehearsal of the unfair and in some respects untruthful report of certain physicians, of whom Dr. Shakespeare was one, who visited the New York Quarantine soon after the cholera-infected passengers of the *Alesia* were put "in quarantine" at Hoffman and Swinburne Islands.

The report which these gentlemen made of their visit at the time was given to the newspapers and produced something of the effect intended—a sensation. Their report was subsequently answered by the Health Officer at New York in a communication to the Mayor of the city of New York, in which some of the statements repeated in Dr. Shakespeare's recently published report were corrected and others denied. The doctor having recently availed himself of the liberality of the Federal Government to publish his criticism, it seems proper that they should be noticed even at this distant date, by one who desires only that the *true* history of the cholera epidemic at the New York Quarantine in 1887 should be written.

There has always been, and probably always will be, an "absence of resident medical officers at both the hospital on Swinburne Island and at the Quarantine of Detention at Hoffman Island." Ordinarily a "resident physician" at either of the islands is unnecessary. There have been few patients suffering with the diseases the law allows to be received there (yellow-fever and cholera) admitted at the Swinburne Island Hospital for several years last past; and none since October, 1890. In an emergency such as existed when cholera patients were in Swinburne Island Hospital, and cholera-infected passengers at Hoffman Island, the Health Officer, his two deputies and the physicians temporarily employed, supplied all the

necessities of the emergency. The Health Officer divided his time between the two islands after the passengers of the *Alesia* were put upon them, giving the largest portion of it to those in hospital; and two experienced nurses were in constant attendance upon the patients. When the *Britannia's* passengers came and increased the duties of the Health Officer and his deputies, Dr. Armstrong, of the United States Marine Hospital Service, and Dr. Frank W. Chapin, of New York, were employed as assistants.

When Dr. Shakespeare states that there was "an absence of anything like an adequate sanitary police" on Hoffman Island, he misrepresents the facts. Four faithful men were employed to guard by day and night the approaches to the island, and to prevent escapes therefrom. Twelve men were employed, under the supervision of one of the most faithful and efficient men that ever served in this department, to police and disinfect the grounds, the dormitories, and correct as far as possible every unsanitary condition and place on the island.

The good doctor goes on to say: "Third. The absence of any effort to separate the well into small groups, and the lack of proper daily systematic inspection." Dr. Shakespeare knows very well that the condition of Hoffman Island, at the time the cholera-infected passengers were there, rendered it impossible for more than three groups to be made; and if he knows anything of what he writes, he knows that the three floors of the dormitories were occupied by groups selected with reference to the possibilities of their being infected. That these groups were judiciously arranged is proved by the fact that, with one exception, every case of cholera that developed after the passengers were removed from the steamer occurred in the group occupying the lower floor of the north dormitory; a group in which the families, friends and acquaintances of the sick and dead passengers were included.

What constitutes "any proper daily systematic inspection," in the opinion of the doctor, we are not informed. It may be something less; it could not be more than was practised daily while the evidence of choleraic infection existed among the passengers. Not only was "daily inspection" of every

passenger made, but *twice* daily. Every deviation from the normal condition of a passenger was considered with careful deliberation. Of the thoroughness of the inspection there are ample proofs, in the fact of the detection of the disease during the period of invasion in several instances. In the case of Francesco Cesario no evidence was given in his general appearance at the morning of inspection of any deviation from health; but one of the attendants noticed that he had diarrhoeal dejections. A close examination of the man confirmed the suspicion that they were choleraic in character. He did not complain, and was inclined to resist the order for his removal to hospital. The man was able to be about the ward of the hospital to which he was assigned for two days before he became seriously ill with the disease.

Antonio Coviello, a child of six years, was noticed at the morning inspection, October 11th, to be languid and drooping, although able to pass the Health Officer for inspection with the other passengers. October 12th the appearance of the tongue of the child indicated choleraic infection, but no other symptoms existed which might not be attributed to disordered digestion. The child was carefully isolated in the bath-room of one of the dormitories, and a diet of milk and soup allowed. At 4 A.M. of the 15th the first choleraic discharge from the bowels occurred, succeeded by several others of like character within a few hours, which were attended with much prostration. (Health Officer's Report, 1887, page 36.)

The doctor continues his criticism under a "fourth" specification as follows: "The unreasonable detention for a period of nearly two months of more than 500 immigrants not sick, under circumstances of great hardship, exposure and privation." And the doctor assumes that the detention of the passengers for that period "bears overwhelming testimony to faulty administration."

Dr. Shakespeare draws his conclusions that a "faulty administration existed," from the fact of this detention. The circumstances that caused their detention he was evidently ignorant of when he wrote the paragraph last quoted from his report, and it is presumed that he did not care to inform himself, for the information was easily obtainable, even if he was

not familiar with the facts which were published in several of the newspapers at the time, and in the official report of the Health Officer for that year. A paragraph from that report (page 43) reads as follows: "No case of cholera developed among the *Alesia's* passengers after October 8th, fifteen days after their arrival at Quarantine (September 23d), except the case of the child Coviello before mentioned, in whom the invasion of the disease was very evident the 11th. This child had been under close observation and isolation after October 8th." "More than three weeks had elapsed since any evidence of choleraic infection had been manifested, when the passengers were transferred to the ship *Washington*. Two weeks before their transfer the Health Officer reported to the Board of Commissioners of Quarantine and the Board of Health of New York City his conviction that the *Alesia's* passengers and their baggage were free from choleraic infection, and ought to be discharged from quarantine. His personal representations to the latter board were concluded by the expression of the opinion that the immigrants should not be discharged from Hoffman Island, and more than an intimation that if they were they would be again quarantined when they came within the jurisdiction of the Board of Health. Under these circumstances the Quarantine authorities believed it better that they should be detained "in quarantine" until the authorities were satisfied to let them proceed to their destinations. To embarrass the situation still more, the cholera-infected passengers of the steamship *Britannia* had been quarantined on that steamer since their arrival on October 13th. The Superintendent of Swinburne Island objected to their transfer to the vacant wards of the hospital on that island, and the Quarantine Commissioners sustained his objection. In the meantime an epidemic of measles had also developed among the passengers of the *Britannia*, and upward of 40 patients with that disease had been removed to the wards at Swinburne Island, and located in wards remote from the cases of cholera from the *Britannia*.

It would have been unpardonable mismanagement to have taken the passengers of the *Britannia* to the Quarantine of Observation while occupied by the *Alesia's* passengers, with no possibility of isolating the infected passengers and baggage of

the former steamer from the disinfected baggage of the latter steamer. The only other alternative was to secure, prepare and anchor a vessel near the Quarantine islands for the *Alesia's* passengers, until such time as the health authorities of New York City would allow them to proceed to their destinations.

This was done, and after a sojourn on the ship *Washington* from November 3d to the 17th the passengers of the *Alesia* were discharged from quarantine. There was no evidence of any infection among the *Alesia's* passengers for three weeks before they were transferred to the *Washington*, as was proved by there being no new cases for that time previous to their being transferred. And that there was no source of infection established on Hoffman Island, as was claimed by sensation-mongers, was demonstrated by the fact that although the *Britannia's* passengers took possession of the island the day after the passengers of the *Alesia* were removed, and remained there under observation for twenty days, no signs of cholera appeared.

In referring to the condition of the Quarantine establishment Dr. Shakespeare says: "And this was the situation after cholera had continued to prevail in countries, the ports of which were in constant direct communication with New York, for upward of four years." It is a source of pleasure to be able to agree with the doctor for once. The Health Officer at New York summoned the State Board of Health in the summer of 1884 to visit the Quarantine islands and consider the "situation." The members of the Board inspected the establishment and unanimously passed resolutions requesting the Governor and Legislature to grant an appropriation to make the necessary improvements.

In the fall of the same year the representatives of health organizations and eminent sanitarians from several States met in New York at the request of the Health Officer of the port and considered the measures necessary to fortify our maritime quarantines against the epidemic of cholera that was then numbering its victims by tens of thousands in France and Italy. The conference adopted resolutions expressing necessity and urgency in the repair of the Quarantine islands at the port of New York, and directed that a copy of the resolutions be sent to the Governor of the State and to each

branch of the Legislature. In his report to the Board of Quarantine Commissioners for 1837, the Health Officer said in part: "I have many times called the attention of your honorable Board to the condition of the property (Quarantine islands), and I am aware that the Board has endeavored to repair, improve and protect them by the expenditure of such means as the State has provided. I also know that it has repeatedly endeavored, without success, to secure appropriations for this purpose, which have been granted by the Legislature, but which were vetoed by the Executive."

The inference to be drawn from the report to which I have referred, and to which I have perhaps given too much consideration, is that the Health Officer at New York was responsible for the condition of the Quarantine islands. If by this it is intended to charge the Health Officer's administration with neglect to repair the Quarantine islands at his own expense, for the methods and measures of his administration were not "faulty," except in so far as they were dependent on the condition of the islands, your honorable Board is referred to the testimony of the late Health Officer, Dr. S. O. Vanderpoel, before the Investigating Committee of 1881, in which he said: "It would bankrupt a health officer to keep the Quarantine islands in repair," and to the fact that the "Quarantine of Observation" (Hoffman Island) was not completed for the purposes for which it was intended until the recent improvements were made, and had never been used as a quarantine of observation until the exigencies arising from the enormous emigration, which commenced in 1880, required it.

The representatives of health organizations and eminent sanitary and medical experts repeatedly joined with the Health Officer at New York in calling upon the State authorities to make the necessary improvements and secure the desired repairs and equipment of the Quarantine of Observation. All efforts failed until cholera stood face to face with the community. Partisanship and personal hostility too often prevented the Commissioners of Quarantine from obtaining the appropriations necessary for even the preservation of Hoffman Island, much less for repairs and improvements of the establishment. The New York Quarantine was so long the victim

of partisanship, the appropriations for its preservation were so frequently denied or cut down by executive veto, that the "foundations of the establishment were crumbling with decay, and its efficiency for such an emergency as the advent of cholera produced was greatly impaired."

To most minds it would occur that under these circumstances the Quarantine officials at New York should be commended for destroying the infection of cholera as quickly and as successfully as they did, and that the administration was efficient rather than "faulty."

The official and personal courtesy extended to Dr. Shakespeare by the Health Officer at New York, on the occasion of his visit to the New York Quarantine during the cholera epidemic at the Quarantine islands, would among most professional gentlemen have entitled him to an opportunity for explanation and revision before publishing the criticisms contained in his report.

The following table shows the number of vessels that arrived at the port of New York from yellow-fever-infected ports during the season of 1891 :

Ports.	Vessels.
Havana.....	89
Vera Cruz	38
Rio de Janeiro	63
Para	27
Santos.....	16
Santiago.....	16
Total.....	249

With this report my official relations with the New York Quarantine will close. It is nearly twelve years since I assumed the responsibilities and began to discharge the duties of "Health Officer at the Port of New York." They have been years of earnest, unremitting effort to discharge its duties, with two objects in view: First. To so guard the nation's great highway from the sea that it shall be closed against the infectious and contagious diseases which follow in the course of commercial relations with foreign and domestic ports, or that accompany that vast bannerless army of more than half a million of people that yearly invades our shores from the Old World. Second. To lighten the burdens which

quarantine imposes on commerce, either of actual expense or detention of vessels or passengers, to the utmost extent consistent with the primary duty mentioned.

The twelve years have been years in which care and anxiety have dominated all other impressions.

With the commercial interests of the port of New York as represented by the owners and agents of its vast commercial marine, the administration of the Quarantine department has been in pleasant accord.

In parting with them, as my assistants in the discharge of many responsible duties, I desire to express my grateful appreciation of their valuable services.

WILLIAM M. SMITH,
Health Officer, Port of New York.

February 3, 1892.

NEEDFUL PROTECTION OF THE STATE AGAINST THE INTRODUCTION OF EPIDEMIC DISEASES, for which a thoroughly equipped quarantine establishment is eminently necessary, however, appears to have been viewed by Governor Flower through the old spectacles of his predecessor, who preferred to jeopardize the State and nation to cholera rather than approve of legislative appropriation to make the quarantine establishment efficient against its introduction, so long as the establishment was under the direction of his political opponents. But he was finally driven to the approval of a stinted appropriation by the cholera at the port and the demands of the city of New York. To complete the repairs thus undertaken, the recent Legislature made an appropriation of \$40,000. For economical reasons, it is alleged, the Governor vetoed the measure. It would have increased the State taxes *per capita* about the sixth of one cent; and the nature of the quarantine structures in the lower bay is such that the neglect of timely repairs greatly multiplies the final expense and the difficulty of excluding epidemic diseases.

EDITOR OF THE SANITARIAN.

CAPITAL PUNISHMENT.

REPORT OF A COMMITTEE APPOINTED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK AT ITS ANNUAL MEETING IN 1891, AND PRESENTED BEFORE THE SOCIETY AT THE SESSION OF 1892.*

CAPITAL punishment has engaged the attention of all classes of men, in and out of office—citizens, lawyers, clergymen, legislators, and philanthropists. It has gradually, under ordinary circumstances, been restricted to such persons as have taken the life of a fellow-being. Those in its favor allege the propriety of retaliation, which, among so-called civilized men, becomes the exclusive privilege of the communities, and justify their position by referring to the Bible and the dictates of religion.

Those opposed proclaim their respect for the sacredness of human life under all circumstances, deny the right of the State to destroy it, and protest against the community's imitating in cold blood the example of the very murderer whom it execrates for his brutality and cruel cowardice ; they point to the degrading influence of executions, and also refer, as their justification, to both the Bible and religion. Thus capital punishment is both condemned and authorized by religionists, for the same reason that slavery, but thirty years ago, was both justified and censured.

The questions engaging the attention of this Medical Society of the State of New York are always scientific ; they are practical only so far as they are dependent on and based upon science. No matter what any of our members believes or acts upon as a private citizen outside this hall, and outside the legitimate labors of his professional life ; no matter what his political party allegiance is, or his creed and religious belief, here we are neither lawyers, nor legislators, nor retaliationists, nor religionists. Thus your Committee does not propose to

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ventilate the question of capital punishment, or its perpetuation or abolition, and the subjects connected therewith—viz., the nature of crime, of responsibility or irresponsibility, of the cerebral functions called judgment and will, the existence or non-existence of a free will and its limitations—from any other but an anatomical and physiological, that is, scientific, point of view. Your Committee holds that no questions but those strictly scientific and conducive to the hygiene of mankind have any right before your forum. What we must principally avoid is the reference to metaphysical speculations such as that of one of the greatest minds in history, Spinoza. He maintains that “in the mind there is no such thing as absolute or free will, but the mind is determined to will this or that by a cause which is determined by another cause, this by yet another, and so on to infinity.” Nor must we allow ourselves to be swayed by an opposite consideration of Huxley’s, who contests that “theft and murder would be none the less objectionable were it possible to prove that they were the result of activity of special theft and murder cells in the gray pulp.” Objectionable! That they certainly are, for they are anomalies in themselves and disturbers of the equilibrium of social and moral economy. Objectionable they were, both the theft of a sixpennyworth when it was punished on the gallows as late as this very century, and that which is forgiven or mildly reprimanded by a humane judge of our time. More than merely objectionable is the murder of a fellow-being, whether it is expiated on the gallows, or buried in an insane asylum, or condoned by wire-pulling powers, or justified on the plea of self-defence.

Crime is the result of an evil impulse which ought to have been controlled. The controlling powers are the cerebral functions of judgment and will. Whoever is held responsible for their aberrations and his wrongdoings is termed, and punished as, a criminal. Whoever is considered irresponsible is no longer a criminal to be punished, but a lunatic against whose vagaries society takes pains to protect itself. Indeed, among civilized people, both the punishment of the criminal and the incarceration of the hopelessly insane are, or ought to be, but different modes of self-preservation. By them the theory of revenge and retaliation has been given up long ago.

Their minds are more bent upon the preservation of the physical and moral health of the community than on the spiteful annihilation of the rebel against the common welfare.

The question of responsibility or irresponsibility is a very grave one, both theoretically and practically. The assumption of the adage "no free will exists" would explain and excuse and defend everything either friendly or inimical to the interests of society and the rights of the individual. Still, many high in science and literature and philosophy defend it.

Benedict, one of the best known and deservedly famous physiologists and pathologists of the brain, comes ("On the Brains of Criminals," Vienna, 1879) to the following conclusions:

"The brains of criminals exhibit a deviation from the normal type, and criminals are to be viewed as an anthropological variety of their species, at least among cultured races.

"The constitutional criminal is a burdened individual, and has the same relation to crime as his next-of-blood kin, the epileptic, and his cousin, the idiot, have to their encephalopathic conditions.

"The essential ground of abnormal action of the brain is abnormal brain structure.

"The appreciation of these facts is likely to create a veritable revelation in ethics, psychology, and jurisprudence."

So it will, though not every crime be dictated by disease, and because the interests of the commonwealth require protecting and saving.

Responsibility and irresponsibility have but uncertain boundary lines. These cannot always be determined. They depend on a great many factors which may be fixed or changeable, stationary or transitory. The education of the young, no matter what his cerebral substance or general physical constitution, works only by influencing and changing his brain structure. Disturbances of the health of the body, and particularly of the brain, may either terminate in restitution to the normal estate quickly and easily, or with difficulty and late, or no recovery takes place at all. This difference in the result may depend on the severity of the attack, on a congenital disposition which need not assume the significance of a malformation, but shows itself only in differences in the power

of resistance on the part of the cells or organs in the individual bodies ; in the same way in which an infectious fever destroys the one, injures the other, and leaves the third intact and immune.

These varieties of structure, dispositions, and of powers of endurance and resistance are very interesting. There are many anomalies in the nervous system which tend, according to circumstances, either to recovery or to faulty development. Such are the predispositions, recognizable in infancy and childhood, to neuralgia, nervousness, melancholia, misanthropy, eccentricity, dudism, hysteria, hypochondria, inebriety, convulsions ; the tendency to cardiac, vascular, and vasomotor irregularities, such as palpitations, fainting spells, vertigo, sudden congestions to brain and face. They are neither diseases nor crimes, but they may lead to both. Favorable or untoward influences determine the development of a hypochondriac into either a famous humorist, who makes tens of thousands of sturdy men smile through tears, or a homicide, who sends a shudder through men and women ; or a boy suffering from congestive headaches may develop either into a heart-moving and soul-stirring poet or a raving maniac. For normal growth and exaggerated overgrowth are but two different results of the same vascular action.

The adult man or woman is the result of hereditary and congenital structure and disposition and a thousand influences of mental or physical nature. The former are but nominally different from the latter. Education is but the shaping of the brain by impressions, the consequences of which are physical, no matter whether they are permanent or transitory. When the former, they impress even the features of the face ; deep must be the delineations in the nervous centre which are permanently photographed outside. Thus there are educational crimes like social crimes. The formation of the earliest habits is the determination of the character of the man. The dime novel, which spoils the taste and fires the imagination, is as certainly a source of infection as the exhalation of a sewer. Paul Aubry wrote in 1888 on the contagiousness of murder. With him the great factors in inducing it are heredity and degeneration. The latter, according to him, depends largely on education—in its widest sense. He charges

the public press with producing crimes by its constant sensational reports which excite the imagination and lead to imitation by the persistent parading of an example. Thus are brought about the acts of cruelty during political upheavals, such as remind one more of insanity than of mere barbarism. His prophylaxis is based upon the same opinions. The prevention of the contagiousness of murder consists in a sound moral, individual hygiene, in the moralization of habits and customs, in proper regulations of the press reports, and in a more logical severity of the courts of justice.

Many of the physical changes which lead, or can lead, to criminality are preventable. The servant girl who lets a baby fall may maim it for life, or may so affect the brain as to change the current of thoughts and feelings into criminality. The development of a syphilitic infant into either a healthy man or an invalid, or the luckless possessor of a cerebral endarteritis or gumma, with their physical or moral consequences, depends on the diagnostic knowledge and the therapeutic agents of the practitioner. It is he who may be the intellectual father of the criminal. The obstetrician's clumsy forceps, or improper use of forceps, has frequently injured both head and brain. The prolongation of asphyxia in the newly born gives rise to thrombosis, hemorrhages, and secondary encephalitis, to paralysis, idiocy, epilepsy, or insanity. Thus a few seconds more or less, thus obstetrical knowledge and dexterity more or less, may decide the fate of the newly born, his physical, intellectual, and moral health or invalidism, and his whole future forever. Or, contemplate a few large rhachitic heads a few years old, after the disease has run its full course. Their circumference and shape are probably the same ; ossification has been completed for some time, and no great alterations will ever take place. In all of them rhachitis was mostly cranial and cerebral. One has attained a normal development ; one has developed an unusual amount of brain in the vacant space, and the vascular irritation has added to its vitality and evolution into the growing genius ; the last is a confirmed hydrocephalus with its future semi-paralysis and idiocy. Why these differences ? Why—in one case the condition was recognized in time and treated judiciously ; in the other some domestic absurdity of diagnosis—

difficult teething—was furnished by the ignorant mother and meekly accepted by the medical man. Thus the same big head may mean either perfection or incompetence, and it takes more than a jury of fellow-citizens to decide what is going on inside.

Psychical diseases or anomalies, both acute and chronic, are frequent under toxic influences. Infectious diseases in their acute stages give rise to acute attacks quite often. Scarlatina, typhoid and puerperal-fevers, poison the blood and impair cerebral action by the mere circulation of the ptomaine, though there be no complication with meningitis at all. Even in children, insanity, both maniacal and melancholic, has often been met with in and after infectious fever. Many of the child murders during the puerperal stage were the results of puerperal infection. Opium and the other narcotics—*belladonna*, *hyoscyamus*, *stramonium*—have similar results of depraving both the judgment and will-power. The Chairman knew a woman who took at once a number of doses of cannabis which were given for medicinal purposes, and in her jocose aberration of mind was found dancing and singing round the stove on which she was roasting her baby. Next-day the medicinal mania wore off. It took hard work to save her from the gallows. Ergot sometimes, more frequently iodoform, oxide of carbon, and the sulphide of carbon of the India-rubber works act in the same way. And alcohol? The delirium tremens and its many criminal acts fill the records of both the hospitals and the courts of justice. Still more dangerous, because more numerous, are its chronic effects. Its ethical depravation equals its æsthetical ugliness: mendacity, feebleness of will-power as bad as physical tremor, idiotic torpor, and the delirium of jealousy and violence, the habit of idleness and tramping, thieving, and outrages of all kinds, are the mottoes inscribed on its flag. Acute lead-poisoning leads often to the same symptoms as that of alcohol—sleeplessness, hallucinations, and violence like those of delirium tremens; and its chronic influence leads to results resembling those of progressive paralysis. Your Committee merely mentions cocaine, chloroform, chloral, bromides, to remind you of the many external influences which may slowly, silently, and surely so alter the cerebral substance as to result in functional

anomalies which, if understood, if recognized through that mute and hard cranial shell, as what they are, would be called diseases ; when they are not they are called crimes.

The anatomy and physiology of the brain are greatly under the influence of the heart. Many chronic and some acute cases of dementia can be explained in this way. It is always the chronic class which is more dangerous because it is more difficult to notice and guard against. In many of them atrophy, hypertrophy, or congenital smallness ; in others, adiposity or fatty degeneration, or stenosis of the aorta, with its consecutive cerebral anæmia and ill nutrition, or the obliteration of the pericardium ; in very many the incompetent mitral valve, with its retarding influence on the intra-cranial circulation, is a cause of insanity or insane actions. The latter precede the recognition of the former a long time. A man whose name was prominently mentioned in connection with the New York dynamite affair was repeatedly before the courts for assault and battery and attempts at murder before his condition, appreciated and predicted by a member of your Committee, was finally acknowledged.

The diseases of the brain whose influence on and connection with mental and moral diseases is undoubted are either local or general. In many, no other symptoms could be discovered, in others the intellectual and moral anomalies were complicated with other symptoms. To that class belong tubercles, which are quite common in demented persons, syphilitic changes, abscesses, either from emboli or atheromatous degeneration, neoplasms of different nature, and multiple sclerosis. Very frequent is apoplexy, either from vascular incompetency or traumatic. A boy of eleven years, under the observation of the Chairman of your Committee, fell from a tree and had convulsions which lasted for hours until hemiplegia set in. While his paralysis was slowly improving, he exhibited furi-bund attacks of violence with attempts at murder, and finally epilepsy, all of which improved after several years, leaving a moderate degree of paralysis.

Of the diffuse affections of the brain we shall only mention inanition from physical causes and from overwork and anxiety, and exhaustion from excesses, insolation, trauma, and other causes of hyperæmia and meningitis. Here belongs perience-

phalitis, which may begin slowly with physical symptoms, or with mania and hypochondriasis. Senility is a frequent cause of mental disturbance. Unfortunately, the symptoms of most of these conditions may resemble each other very much; delirium, mania of all kinds, mainly persecution mania, puerility, irascibility, diffidence, misanthropy, are just so many symptoms of both acute, subacute, and chronic forms. Epilepsy is a frequent cause of outbreaks of unexpected violence. This peculiarity gave it the name of propulsive epilepsy. Many criminal acts are the positive results of epilepsy, and many epileptics were cured on the gallows. At this moment a negro is under trial for a murder. He is known to have severe attacks of epilepsy. Experts have sworn he is a criminal. Experts have sworn he is diseased and not responsible. What does it teach? It teaches that there is surely reason for a doubt as to the causation of the criminal act. It would also teach that society as represented by the jury, and society as representing the humane spirit of the times, ought to keep a sharp lookout to its own dignity. Man may blunder, but society cannot afford to be brutally mistaken where it is at the same time accuser, judge, jury, and executioner.

The malformations of the male sexual organs, mainly anorchis and diminutive development of the penis and testicles, predispose to mental degeneration, with its consequences. One of your Committee knows a man of thirty-six with infantile organs and no trace of hair on the pubes. In spite of repeated warnings not to expose himself to utter failure, he attempted cohabitation. When alone with his partner he grew moody and desperate, becoming more than ever aware of his incompetency. In his rage at rendering himself ridiculous he attempted to strangle the woman; she finally succeeded in saving herself and delivering him to the police, which landed him in a penitentiary. Masturbation and emissions produce melancholia and mania; in milder forms depression, despondency, and moral obliquity. If you wish an example of monomania resulting from masturbation and excessive venery take that of a man otherwise gifted and in high esteem for many personal qualities—Tolstoi. His “*Kreutzer Sonata*,” the hero of which is evidently an autophotograph, is the nastiest and most vulgar glorification of male impotence

and consequent moral depravity possible. It is again the class of masturbators which furnishes part of the disgusting tribe addicted to sexual perversion, such as pæderasty, sodomy, and homicidal mania. Nymphomania I have not mentioned, because its complication with homicidal mania is but rare. But the influence of the great developmental periods—puberty and the climacteric age—in the production of moral morbidity is well appreciated. .

Great difficulty in deciding the nature of a criminal insult is experienced in cases of periodic insanity. It is these cases which are received in lunatic asylums, retained for a short time, and then discharged cured to exhibit favorable statistics, or are freed by the philanthropoid cranks who mistake a hospital for a dungeon. The dangers of such premature or unauthorized discharges are great indeed; the daily press reports from time to time homicides and murders committed by men who ought to be protected against themselves and prevented from doing harm to others by being locked up for life. Intervals between acute attacks of mania or melancholia may last years; particularly cases connected with epilepsy come suddenly like a flash. Moon and sun, terrestrial magnetism, and the electrical condition of the atmosphere, climate, telluric exhalations, intervening disease—be it only influenza, wounds, or other debilitating influences of short duration—are apt to give rise to violent outbreaks. In such cases the decision as to whether the accused was a criminal or a sick man when the murder was committed is very difficult, or even impossible. Years after the occurrence the diagnosis of the case must be attempted. The history of previous cerebral disease, of *petit mal* or full-grown epilepsy, neuroses and fainting spells, eccentricities, hallucinations, possible heredity, will be told with more or less significance. These are the very cases which prove unmistakably that insanity is not always typical and constant in its nature. Doubtful conditions are very frequent. And in the face of these facts a jury is expected, under the spur of one attorney and the derision of the other, to find a verdict of responsibility or irresponsibility. These are also the facts which have induced the Germans to establish the principle of a partial responsibility.

When a crime is made the subject of investigation the per

petrator ought to be subjected to the closest study. The action of an engine is not estimated or calculated without considering the shafts and wheels and boiler ; but the changes of judgment and will are weighed too often by the so-called common sense of the illiterate or semi-educated. No matter whether Benedict and Lombroso are right or wrong, these facts are incontrovertible. You meet too large heads, too small heads, asymmetrical heads—such as you find so very often in epilepsy and idiocy—asymmetrical faces, disproportion between skull and face and their single parts ; also disproportion between other parts of the body, excessive length of extremities, big mouth, overgrown tongue, the roof of the mouth too much arched or too flat, and the teeth irregular ; the top of the head or the occiput flattened, hare-lip and cleft palate, heavy lower lip, deformed ears, and different colors of iris. There may be the retracted nasal insertion and the shortened base of the skull of the cretin or semi-cretin, or early neurotic symptoms—such as hysteria, chorea, epilepsy, night-terrors, and tachycardia.

Suicidal tendency with the result of repeated attempts at self-destruction is but rarely the result of instantaneous despair or despondency. In many cases the actors in that drama had an organic disease—among them lepto-meningitis in all its forms, sclerosis, syphilis, embolism, gray degeneration, adhesions, and cysts. Acute and isolated attacks are often the results of fever, in pneumonia, pleurisy, meningitis, typhoid-fever, or influenza. And these are, in part, the cases which are thought worthy not of the hospital, but of the penitentiary.

Conclusions.—There are many causes of the perversion of judgment and will.

Those causes which are physical are either congenital or acquired. When acquired, they are so either by the progressive development of hereditary or congenital disposition, or by intervening diseases, or by the impairment of cerebral evolution through bad training, example, and social influences.

The variety of causes, both anatomical and functional, is such as to render an exact diagnosis extremely difficult. The sworn opinions of experts are quite often contradictory.

Cerebral anomalies and lesions are very often not accessible to our methods of investigation.

When there is any doubt in an individual case of crime in regard to either responsibility or irresponsibility, it is safer to take the alleged criminal to be diseased and morbid than to declare the sick to be a criminal.

In many cases the innocent and the anatomically sick have been subjected to capital punishment. On the other hand, dubious cases developed full-grown dementia soon after the criminal proceedings.

The knowledge of such occurrences is part of the reasons why juries are averse to rendering the verdict leading to a death penalty, and why but a small percentage of murderers are ever sentenced among us, and why so many are set free to become permanent dangers to the safety of the public.

Human society and the State, while they owe protection and safety to all, must make no mistake unless it be in the direction of leniency and humanity.

The medical profession must not allow mistakes to be made which can be prevented. This Medical Society of the State of New York—having the advantages of physiological knowledge and being aware of the difficulties of being always correct, and of the absolute impossibility of making a positively safe diagnosis in every case of alleged crime or presumable cerebral disease or anomaly—expresses its opposition to the perpetuation of capital punishment and its hope that means will be found to protect the community by less uncertain and less inhumane methods.

A. JACOBI, M.D., New York,
Chairman of the Committee.

WILLIAM C. WEY, M.D., Elmira.
B. F. SHERMAN, M.D., Ogdensburgh.

STATE CARE OF EPILEPTICS.—Among the acts passed at the recent session of the Legislature of New York, and signed by the Governor, one provides for the establishment of a State institution for the care of epileptics. The State Board of Charities is to look out for a site and procure plans for submission to the next Legislature.

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochran, M.D., State Health Officer, Montgomery.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Mortality reports from 117 cities, towns, villages, and localities, having an aggregate population of 789,931, show 1027 deaths from all causes during the month of April. This corresponds to a death-rate of 1.030 per thousand for April, or 15.60 per 1000 per annum.

There were 195 deaths due to consumption, 76 to pneumonia, 35 to acute bronchitis, 10 to congestion of the lungs, 9 to diarrhoea and dysentery, 5 to cholera infantum, 41 to other diseases of stomach and bowels, 26 to diphtheria, 11 to croup, 6 to scarlatina, 9 to measles, 11 to whooping-cough, 15 to typhoid-fever, 4 to malarial-fevers, 8 to cerebro-spinal-fever, 39 to cancer, 2 to erysipelas, 84 to diseases of the heart, 9 to alcoholism, 2 to influenza, and 430 to all other causes.

This shows a continued though small reduction in fatalities from respiratory diseases.

In January there were 595 deaths from diseases of the lungs, in February 380, in March 330, and in April 306.

On April 21st a case of varioloid was discovered at Berkeley, Alameda County, in a married man, twenty-five years of age, by occupation a handler of foreign goods. The origin is unknown, but the patient stated to the local health officer, Dr. F. H. Payne, that about ten days before he was attacked a muffled Chinaman, having sores on his face, took a seat in a car next to him on the local train from San Francisco. No such Chinaman has yet been found. Strict quarantine, isola-

tion, and vaccination were the restrictive and preventive measures adopted, and no new cases have developed yet.

On May 3d a case of varioloid was discovered on a fishing boat, on the Sacramento River, four miles above Sacramento City. The afflicted person is a native of the Sandwich Islands, aged thirty-seven years, and came directly from San Francisco. Before being sent to the pest-house, he walked with a companion from the wharf through seven blocks of the business portion of the city, and voluntarily presented himself to the local authorities. The isolation of pest-house regulations has been applied to the patient and his companion.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven.

The mortality report for April has been received from every town in Connecticut.

There were 1132 deaths reported in the State during the month. This was 172 less than in March; it was 128 less than in April, 1891, and 23 more than the average number of deaths in April for the five years preceding the present.

The death-rate was 18.5 for the large towns; for the small towns 17.4, and 18.2 for the whole State.

The deaths from zymotic diseases were 150, being 13.2 per cent of the total mortality against 14.7 per cent in March.

From epidemic influenza there were 13 deaths; from consumption, 130; from scarlet-fever, 40, and from pneumonia, 170. There were 217 decedents under five years of age.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000: C. M. Hammett, M.D., Health Officer. In the four weeks ending May 28th, 1892, there were 396 deaths, of which number 164 were colored, and 116 were under five years of age.

The annual death-rate was 20.5 per 1000.

From zymotic diseases there were 53 deaths, and from consumption, 60.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Eighteen counties, with an aggregate population of 194,809, report for the month of April a total mortality of 233, of which 100 were under five years of age, and 96 were of colored inhabitants. The annual death-rate per 1000 was 14.35. The principal causes of deaths were : consumption, 19 ; pneumonia, 15 ; heart diseases, 5 ; bronchitis, 7 ; apoplexy, 5 ; typhoid-fever, 16 ; inanition, 12 ; and diarrhœa, 8.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Eleventh Annual Report of the State Board for the Year Ending December 31st, 1888. With an Appendix containing the Official Register of Physicians and Midwives, 1892. Pp. 333.

The most of the practical portion of this report has appeared from time to time in our pages as it has proceeded under special official investigations and acts, by the secretary, circulars of instruction, admonition, etc. These are of abiding interest, however, and some of them no less appropriate to the present time than they were at the time of their utterance. In the abstract of the proceedings of the quarterly meeting of the Board, October, 1888, for example, the secretary recalls his admonitions in the regard to the necessity of sanitary defences and the need of national legislation to render them effective alike against the introduction of epidemic diseases from abroad and their spread from one State to another at home, with singular fulfilment in 1887 and 1888 by the approach of cholera at New York and the occurrence of yellow-fever in Florida. The admonition still obtains that

“ Sooner or later the National Government will be compelled not only to assume supervision of external quarantines, but provide for a permanent system of co-operation with State and local governments in the administration of inter-State sanitation ; in order, on the one hand, to prevent the introduction of exotic epidemic diseases, and on the other, to prevent their spread from State to State along the great international highways of travel and commerce. This is a national duty. It is one that the National Government only can adequately discharge, and its expense is equitably one that should be defrayed from the national treasury. . . . Such an organization of the sanitary defences would inspire public confidence and prevent panic in the face of real danger, and panic is one of the worst complications of an epidemic, as fear

is one of the most potent predisposing causes of epidemic disease."

On correspondence with the various transportation companies affected by the Florida epidemic of yellow-fever in 1888, from the replies received the secretary estimates the loss, by unnecessary interference with travel and traffic, at least \$10,000,000.

And it is remarked that during the active existence of the National Board of Health, 1879, 1880, and 1881, unnecessary quarantines were almost entirely suppressed, panic was avoided, travel and traffic—except with the actually infected localities—were uninterrupted, and the public health was well protected.

How long the National Government will continue to ignore the resources of sanitary science and the people to stand the cost in both life and treasure, in view of the apathy of the present Congress to such matters, is problematical.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored: Deaths in two weeks ending May 21st, 1892, 324, representing an annual death-rate of 33.27 per 1000. Of the total mortality, 116 were colored, and 130 were under the age of five years. 68 deaths were from zymotic causes, and 42 were from consumption.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427: A. R. Carter, Secretary, reports for

May that the total deaths were 752, a decrease of 140, compared with the corresponding month of May, 1891. Of these 581 were whites and 171 colored; a death-rate of 18.15 per 1000 for the former and 28.90 per 1000 for the latter. The death-rate per 1000 for the whole population was 19.83. 100 died from infectious diseases, 89 from consumption, 57 from pneumonia, 4 from influenza, and 2 from cholera infantum. 34.84 per cent of the total deaths were in children under five years of age.

During the month 1634 cases of infectious diseases were reported, an increase of 198 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston. *Boston*, 459,062: S. H. Durgin, M.D., Chairman. There were 938 deaths reported in April, of which number 275 were under five years of age. The annual death-rate per 1000 was 24.51. There were 130 deaths from zymotic diseases, and 135 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of May, 1892, compared with the preceding month, the reports indicate that small-pox, cerebro-spinal meningitis, cholera morbus, membranous croup, inflammation of brain and typhoid-fever increased, and that typho-malarial-fever, puerperal-fever, influenza, erysipelas, and tonsillitis decreased in area of prevalence.

Compared with the preceding month the prevailing direction of the wind was southeast (instead of northwest), the velocity was less, the temperature was higher, the rainfall was 3.91 inches more, the absolute and the relative humidity were more, the day and the night ozone were much more.

For the month of May, 1892, compared with the average for the month of May in the six years 1886-91, membranous croup, diphtheria and typhoid-fever were more prevalent, and typho-malarial-fever, measles, whooping-cough, erysipelas, consumption of lungs, influenza, intermittent-fever and dysentery were less prevalent in May, 1892.

For the month of May, 1892, compared with the average for corresponding months in the six years 1886-91, the pre-

vailing direction of the wind was southeast (instead of southwest and westerly), the velocity was greater, the temperature was lower, the rainfall was 2.86 inches more, the absolute and the relative humidity were more, the day and the night ozone were considerably less.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of May, 1892, at eighty-one places; scarlet-fever, one hundred and eleven; typhoid-fever, twenty-four; measles, thirty-nine; one case of varioloid at Detroit, and one case of small-pox in Green Oak township.

Reports from all sources show diphtheria reported at twenty-five places more, scarlet-fever at seventeen places less, typhoid-fever at eleven places less, and measles at two places more in the month of May, 1892, than in the preceding month.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

Aggregate population of the State, 1,301,826. Reports for the month of March from 809 localities gave a mortality of 874 from all causes. From tuberculosis there were 109 deaths; diphtheria and croup, 61; scarlatina, 21; influenza, 18; enteric-fever, 28, and whooping-cough, 9.

The annual death-rate per 1000 was 9.62.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716: E. R. Lewis, M.D., Sanitary Superintendent.

There were 130 deaths during the month of April, of which 35 were under five years of age. The annual death-rate was 11.7 per 1000. From zymotic diseases there were 8 deaths, and from consumption, 15.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany.

The total mortality for the month of April was 10,590.

The average daily reported mortality was 353 ; in March it was 354 ; in February, 371 ; in April, 1891, it was (at the height of the gripe epidemic) 463 ; the average daily mortality in April for the past seven years is 347. Deaths continue to be reported from influenza, and may be estimated at not less than 500, or 5 per cent of all deaths—the entire mortality from this cause since the present epidemic began being to May 1st about 12,000. There were 250 less deaths from acute respiratory diseases than in March and a similar diminution in deaths from old age. The percentage of deaths under the age of five years has increased. Measles caused an increased number of deaths. Diphtheria is reported as prevalent at several localities, among them Jamestown, Hoosick Falls and Oneonta ; the mortality from it in the State is somewhat diminished. Typhus-fever caused 3 deaths in New York. Small-pox caused 11 deaths, all in New York except one in the Hospital for Contagious Diseases at Flatbush, and one in Syracuse which was imported from Brooklyn, its spread being limited to one secondary case. The annual death for the month, allowing for delayed returns not yet reported, is about 22.00 per 1000 population for the entire State.

New York, 1,680,796 : Total deaths, 4059—1592 under five years. Death-rate, 27.00. Zymotic diseases per 1000 deaths from all causes, 168.10. Deaths from consumption, 516.

Brooklyn, 862,155 : Total deaths, 1643—583 under five years. Death-rate, 22.76. Zymotic diseases per 1000 deaths from all causes, 128.42. Deaths from consumption, 175.

Albany, 100,000 : Total deaths, 194—69 under five years. Death-rate, 23.38. Zymotic diseases per 1000 deaths from all causes, 140.00. Deaths from consumption, 21.

Syracuse, 88,143 : Total deaths, 121—41 under five years. Death-rate, 16.52. Deaths from zymotic diseases per 1000 deaths from all causes, 33.25. Deaths from consumption, 25.

Buffalo, 255,664 : Total deaths, 474—183 under five years of age. Death-rate, 22.24. Deaths from zymotic diseases per 1000 deaths from all causes, 110.00. Deaths from consumption, 49.

Rochester, 133,896 : Total deaths, 233—84 under five years

of age. Death-rate, 20.15. Deaths from zymotic diseases per 1000 deaths from all causes, 150.23. Deaths from consumption, 21.

NORTH CAROLINA.—Thomas F. Wood, M.D., Secretary, Wilmington. Nineteen towns, with a total population of 96,600, reported 143 deaths during April, representing an annual death-rate of 17.7 per 1000. There were 58 deaths under five years of age. The principal causes of death were pneumonia, 23 ; consumption, 17 ; heart disease, 6.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus. Sixty-four localities, with an aggregate population of 1,267,822, report for the month of April 1833 deaths, of which 583 were under five years of age. Annual death-rate, 17.23 per 1000. There were 202 deaths from zymotic diseases, 354 from consumption, 119 from diseases of the heart, 191 from pneumonia, 19 from meningitis, and 176 premature and still-births.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer. In the four weeks ending May 28th, 1892, there were 1733 deaths, of which 614 were under five years of age.

From contagious and infectious diseases there were 225 deaths, and from consumption, 211. Annual death-rate, 20.6 per 1000.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar. The number of deaths for the four weeks ending May 28th, 1892, was 376, of which 149 were under five years of age. From zymotic diseases there were 46 deaths, and from consumption, 35. Annual death-rate, 19.16 per 1000.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence. During the month of April there were 472 deaths.

reported, in an aggregate population of 313,228, representing an annual death-rate of 18.07 per 1000.

There were 46 deaths from zymotic diseases, and 56 from consumption.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville.

The principal diseases, named in the order of their greater prevalence, in the State for the month of April were : bronchitis, pneumonia, malarial-fever, typhoid-fever, consumption, whooping-cough, and measles.

Typhoid-fever was reported in the counties of Anderson, Davidson, Hamilton, Knox, Shelby and Wayne ; whooping-cough in Carter, Davidson, Hamilton and Stewart ; measles in Carter, Hamilton, Hardeman and McMinn ; scarlet-fever in Humphreys, Knox and Shelby ; influenza in Decatur, Grundy and Robertson ; mumps in Anderson, Hamilton and McMinn ; diphtheria in Davidson and Shelby ; croup in Decatur and Gibson ; cerebro-spinal meningitis in Hamilton and Hardeman.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

MORTALITY STATISTICS ABROAD FOR THREE MONTHS ENDING
MARCH 31ST, 1892.

Population, total number of deaths, annual death-rate per 1000, and deaths from small-pox :

London, 4,263,294 ; 29,931 ; 28.1 ; 7. Glasgow, 669,143 ; 4174 ; 25.0 ; 1. Liverpool, 513,790 ; 3941 ; 30.7 ; 7. Manchester, 510,998 ; 3330 ; 26.1. Birmingham, 483,526 ; 2623 ; 21.7. Leeds, 375,540 ; 2029 ; 21.6. Dublin, 349,594 ; 3341 ; 38.2. Sheffield, 329,585 ; 1777 ; 21.6. Edinburgh, 264,787 ; 1311 ; 19.8. Belfast, 255,922 ; 1965 ; 30.7. Bristol, 223,592 ; 1314 ; 23.5. Bradford, 219,262 ; 1033 ; 18.8. Nottingham, 215,395 ; 1267 ; 23.5. Hull, 204,750 ; 1047 ; 20.5. Salford, 201,058 ; 1248 ; 24.8. Newcastle, 192,205 ; 1141 ; 23.7. Portsmouth, 163,667 ; 1146 ; 28.0. Norwich, 102,736 ; 732 ; 28.5. Brussels, 486,254 ; 3207 ; 26.9 ; 5. Amsterdam, 406,302 ; 2700 ; 26.6. Rotterdam, 203,486 ; 1558 ; 30.6. The Hague, 156,497 ; 1060 ; 27.1. Paris, 2,424,705 ; 16,141 ; 26.6 ; 8. Lyons, 416,029 ; 3070 ; 29.5 ; 7. Marseilles, 406,919 ; 3835 ; 37.7 ; 33. Bordeaux, 240,582 ; 1657 ; 27.5 ; 37. Nantes, 127,482 ; 864 ; 27.1. Saint-Étienne, 117,875 ; 1032 ; 35.0 ; 5. Havre, 116,369 ; 918 ; 31.6 ; 2. Rouen, 111,847 ; 923 ; 33.0. Reims, 105,408 ; 828 ; 31.4 ; 16. Nice, 97,720 ; 789 ; 32.3 ; 4. Nancy, 87,110 ; 669 ; 30.7 ; 3. Amiens, 83,654 ; 592 ; 28.3. Limoges, 72,697 ; 585 ; 32.2 ; 55. Besançon, 54,636 ; 343 ; 19.6. Berlin, 1,662,237 ; 8184 ; 19.7. Hamburg, 637,686 ; 3728 ; 23.4 ; 1. Leipzig, 375,707 ; 1851 ; 19.7. Munich, 366,000 ; 2730 ; 29.8. Breslau, 324,143 ; 2138 ; 26.4. Cologne, 290,000 ; 2152 ; 29.7. Dresden, 286,200 ; 1643 ; 23.0. Frankfort, 188,050 ; 1059 ; 22.5. Hanover, 171,148 ; 836 ; 19.5. Königsberg, 164,996 ; 985 ; 23.8. Düsseldorf, 153,968 ; 774 ; 20.1. Nuremberg, 151,362 ; 1058 ; 28.0. Altona, 148,615 ; 1081 ; 28.9. Chemnitz, 147,863 ; 1077 ; 29.1. Elberfeld, 131,181 ; 647 ; 19.8. Stuttgart, 129,034 ; 697 ; 21.6. Bremen, 127,993 ; 766 ; 23.9. Strassburg, 127,147 ; 871 ; 27.4. Dantzig, 122,091 ; 768 ; 25.2. Stettin, 121,512 ; 647 ; 21.3. Barmen, 120,284 ; 676 ; 22.5. Crefeld, 110,170 ; 458 ; 16.6. Halle, 107,551 ; 560 ; 20.8. Aix-la-Chapelle, 105,923 ; 689 ; 26.0. Essen, 83,025 ; 543 ; 26.2. Mayence, 73,877 ; 478 ; 25.9. Metz, 62,122 ; 369 ; 23.8. Vienna, 1,406,933 ;

10,179; 28.9; 14. Buda-Pesth, 526,263; 3934; 29.9; 1. Prague, 317,614; 2224; 28.0; 80. Trieste, 157,343; 1610; 40.9. Gratz, 114,272; 919; 32.2. Brünn, 96,186; 868; 36.1. Cracovie, 76,116; 701; 36.8; 3. Presbourg, 56,746; 523; 36.9. Pilsen, 51,860; 358; 27.6; 1. Linz, 48,565; 486; 40.0. Copenhagen, 326,000; 1988; 24.4. Stockholm, 248,051; 1537; 24.8. Gothemburg, 105,000; 518; 19.7. Christiania, 151,130; 961; 25.4. Helsingfors, 64,225; 357; 22.2; 6. Warsaw, 490,417; 3037; 24.8; 56. Odessa, 302,000; 1911; 25.3; 2. Rome, 436,179; 3127; 28.7; 1. Turin, 328,777; 2832; 34.5; 1. Genoa, 197,403; 1951; 39.5; 21. Venice, 161,130; 1587; 39.4. Bologna, 141,750; 1483; 41.8. Bucharest, 206,000; 2038; 39.6.

The following cities report for the year 1891:

Lille, 188,272; 5246; 27.9; 79. Bayonne, 27,289; 577; 21.1. La Rochelle, 23,289; 664; 28.5. Milan, 418,972; 11,017; 26.3; 6. Murcie, 80,000; 3229; 40.4; 23. Carthage, 54,315; 3111; 57.3. Lisbon, 242,297; 8445; 34.9; 252. Bombay, 821,764; 23,784; 29.0; 125. Calcutta, 466,459; 12,962; 27.9; 15. Madras, 452,518; 23,236; 52.5; 70.

BUENOS AYRES, 553,007: Albert B. Martinez, Director General of Municipal Statistics. The report for the month of March, 1892, shows that there was a total mortality of 934, of which number 483 were of children under five years of age. From infectious and contagious diseases there were 130 deaths; from pneumonia, 36; from meningitis, 44; from gastro-enteritis, 61; still-births, 105.

CHOLERA, according to the most recent reports, telegraphic and otherwise, is committing unusual ravages in India and Persia.

A despatch to the London *Times* from Calcutta, June 3d, 1892, reports that up to that time there had been over three thousand deaths from it at Serinagar during the four weeks preceding.

Dr. Gregg, the Sanitary Commissioner of Bengal, has lately issued a report upon a local outbreak of cholera at Serampore, a few miles northwest of Calcutta, which shows how cholera

is generated in India and whence its epidemics arise. Dr. Gregg went himself to investigate carefully the condition of the place in which the outbreak took place. He found that the physical formation of all portions of the affected locality is similar, and the ground low and swampy. Over the whole area tanks have been dug of various sizes, shapes, and depth, and all contain very dirty water. Low, foul jungle reeking with bad smells surround these tanks, the surfaces of which are almost completely hidden with thick, decaying water plants, with here and there a clear place, where the inhabitants wash their cooking utensils and draw water for domestic purposes.

Between and around the houses are narrow lanes bordered by narrow, deep, uneven drains, in which filth collects. The substances under the influence of the hot sun quickly decompose and emit foul smells. In places Dr. Gregg actually observed "masses of undulating maggots and portions of decaying animals." Wherever the people living in the houses in the neighborhood of these tanks had used the water there cholera made its appearance, and the tanks are also the sources from which the milkmen obtain water for their cows, and it is more than probable they dilute the milk they sell with the same water.

Continuing his inquiries from house to house Dr. Gregg found that wherever the supply of milk was obtained from cows who drank at the dirty tanks cholera was present, and that there was a corresponding absence of cholera among the police constables, who were supplied with clean water from the police tank and obtained their milk supply from a distance.

Constantinople, June 4.—According to advices received here from Meshed, Persia, the ravages of cholera in that city show no signs of abatement. The number of deaths fluctuates daily. The highest total yet recorded in twenty-four hours was fifty-four. This was on Tuesday. On Wednesday the deaths fell to twenty-three, but on Thursday the record jumped to forty-eight. It is not believed that the disease will spread westward.

St. Petersburg, June 20.—Fearful accounts have been received of the ravages of cholera in the province of Khorassan,

Persia. In the streets of Turbat-i-Shekh-Jami the dead lie unburied in the streets, and the air along the valley of the Jam River is polluted with the odor of corpses that have been thrown into the stream. But for the multitudes of dogs which devour portions of the bodies, and thus lessen the evil to some extent, the horrors of the pestilence would be far greater. The people make no serious effort to stop the plague except by prayer. They parade the streets in thousands, led by the Mollahs, and offer up earnest supplications. The disease as yet shows no signs of abating, as the gathering of people in such crowds has rather a tendency to spread it.

London, June 20.—A despatch to the *Times* from Teheran says that official figures in regard to the epidemic of cholera pretend that the mortality does not exceed one hundred daily, while private inquiries prove that the number of deaths from the disease is double those figures.

A despatch from Calcutta says that a thorough inquiry should be made regarding the case of the British ship *Crofton Hall*, Captain Lyons, which sailed from Calcutta on June 3d for Hull, England. After the ship had been out ten days she returned with nearly all her crew of twenty-nine men dead or dangerously ill with cholera. During the short time she had been at sea six deaths from cholera had occurred aboard the vessel, and eighteen other men were stricken with the malady. The disease is said to have been aggravated by the use of bad salt meat for food on the vessel.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

DOCUMENTS RELATING TO THE GRIP OF 1889 AND 1890 were summarized by M. Proust at a recent session of the Academy of Medicine as follows :

This epidemic, in appearance mild, has caused more deaths than cholera, which created so much alarm among the people wherever it made its appearance. M. Proust estimates the deaths in France from that cause at 60,000 persons, and he attributes to it a deficiency of 27,000 births during the same

time, which makes a total loss to the country of 87,000 persons, due to influenza. In his opinion, influenza is contagious from person to person, and the rapidity with which it spreads is in a direct ratio with the rapidity of intercommunication. It seems to have originated in Asia, and thence spread successively to Russia, Germany, Austria, France, Belgium, Sweden, Norway, England, and later to the shores of the Mediterranean, to Africa and America. M. Proust points out the nervous, the pulmonary, and the gastric forms; he also remarks the comparative immunity of children and the greater mortality among old people. The influence of varying atmospheric conditions, of cold, humidity, and of barometric pressure, have not been confirmed.

M. Lancereau thinks the disease is transmitted through the air; and M. Tessier considers that the impurity of the water has much to do with the spread of the disease.

M. Proust recommends people to avoid cold, to wash the mouth with aromatic lotions or aromatized water as the best prophylactic measures to be taken against the grip.

The *Gazette Hebdomadaire* thinks that the report is far from casting any important light on the nature of the terrible epidemic.

ARISTOL IN DISEASES OF THE NOSE AND EAR is the subject of a contribution to the *Berliner Klenische Wochenschrift*, No. 26, 1892, by Professor K. Burkner, in which he states its employment as follows:

"I have employed aristol in the form of powders, ointments, and emulsion with glycerine in eighty-six cases—viz., six cases of otitis media suppurative acuta, forty-nine of otitis media suppurative chronica, twenty-two granulations in the tympanum, six of furuncles, and three of otitis externa diffusa.

"In acute suppuration of the middle ear I have seldom attempted to resort to aristol, because it is insoluble in the secretions, and for this reason we run the danger of plugging up a small perforation, just as with alum, and in a still more marked degree with boracic acid powder, of forming hard concretions and causing a retention of pus. Moreover, the effect of the remedy in the six cases of acute purulent otitis media

treated with it was so little satisfactory, the secretion of pus being rather increased than diminished, that in the course of five to ten days I returned to my customary treatment of lead solution.

“In case of large perforations, such as occur frequently in chronic suppuration of the middle ear, I was able to confirm Szene’s observation that a slight stagnation of secretion, which may be easily overlooked, takes place behind the insufflated powder. Although I never noted any objectional demonstrable evidences of irritation of the tympanic mucous membrane, the patients repeatedly complained (nine cases) of severe pains in the auditory canal, sometimes after the first, but usually after a later insufflation. Occasionally in these cases I found the posterior upper wall of the bony auditory canal somewhat swollen, so that I was compelled to discontinue the aristol earlier than I had intended.

“In eight out of forty-nine cases the suppuration was rapidly arrested ; but I cannot assert positively that this result was more favorable than that following the use of boracic acid. Fourteen other cases were slowly relieved, and in ten cases a decided increase of the secretions were produced. Hence in nineteen of my forty-nine chronic cases, aristol had an unfavorable effect.

“On the other hand, aristol gave excellent results in some cases of granulation formations in the tympanum and auditory canal, in which respect my experience agrees with that of Szene’s. Among twenty-two cases, part of which had been treated with applications of nitrate of silver without much benefit, thirteen exhibited very rapid improvement, the granulations being completely or considerably shrunk ; in six cases the improvement was slight.

“In cases of furuncles I employed aristol ointment a number of times, but cannot say that the effect was especially favorable, although no disturbances were observed from its use.

“Otitis externa diffusa with suppuration disappeared rapidly in three of the cases treated with aristol ; but there were instances of slight superficial inflammation which usually yield readily to other kinds of treatment.

“While, as appears from the foregoing remarks, I am unable to speak of any especial advantages of aristol in

ototherapy, I obtained excellent results from the drug in the treatment of diseases of the nose.

“Twenty-six cases were treated, comprising three of nasal syphilis, fifteen of non-specific ozæna, and eight of granulation formations.


“The effect was really astonishing in the majority of cases. The aristol powder is much better borne than the sozodol salts and aluminium acetico-tartrate, the latter being one of my favorite remedies. Headache occurred only in a few cases, and epiphora was much less marked than with other powders for the nose. The factor disappears in ozæna sometimes after the first insufflation for a period of at least twenty-four hours, and after longer treatment for a number of days; the appearance of the nasal mucous membrane changes much for the better, both over the atrophied places and in their vicinity, if this is hypertrophied. I must, however, confess that occasionally aluminium acetico-tartaricum acts even more effectively, at least upon the factor; but as it is more irritatory, I prefer aristol. Moreover, I have recently treated a series of other cases with a mixture of both preparations, and was much pleased with the result.

“Ulcerations of syphilitic origin also showed a marked tendency to healing after a brief employment of aristol; in this condition the remedy yields the palm to no other.

“As in ear, granulations on the nasal mucous membrane were made to rapidly disappear, and in several cases permanently removed by insufflations and tampons. While I am quite convinced that aristol regularly tends to check secretions in cases of nasal diseases, I have certainly observed that frequently it produces a less marked hypersecretion than other remedies; as, for example, iodoform and aluminium acetico tartaricum.

“In diseases of the nose, and doubtless not alone in those selected by me, aristol may be regarded as an important addition to our armamentarium, and I would recommend the remedy as worthy of careful trial in these affections, as well as in otiatric therapeutics, where others may, perhaps, obtain better results from it than myself.”

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, Dr. A. N. BELL, Brooklyn, N. Y.

PUBLIC EDUCATION IN BROOKLYN is provided for with remarkable liberality by the city, but with singular parsimony with regard to the freest and withal the most needful of all supplies—an abundance of fresh air—by the Board of Education.*

The amount of money expended for school purposes during the year 1891 was \$2,689,345.14, at an average cost per capita for instruction and supervision, if estimated on the total number of different pupils instructed, \$12.39 ; or, if estimated on the average number of pupils in daily attendance, \$19.30. The average cost per capita for general purposes, on the same estimates, respectively was \$2.77 and \$4.28.

“ The number of pupils on register at the close of 1891 was 90,932, an increase of 4499 over the register at the close of 1890. The number of different pupils instructed during the year was 120,121, an increase of 4416 over the preceding year. The average register for the year was 87,625, an increase of 4482 over the preceding year. The average daily attendance was 77,893, an increase of 2619 over the preceding year. The per cent of attendance on the number of different pupils instructed was 64.8 ; the corresponding per cent for 1890 was 65.1. The per cent of the average attendance on the average register was 88.9 ; the corresponding per cent for 1890 was 90.5.”

In the matter of accommodations, the schools are said to be in worse condition than they were the previous year. Yet the total seating capacity exceeds the number of pupils on register by 916 sittings. The number of sittings in rooms devoted to grammar classes exceeds the register by 4859. But the primary classes exceed the sittings by 4283. This means

* Annual Report of the Superintendent of Public Instruction for 1891.

that in the majority of schools the primary classes are cruelly, shamefully crowded.

" In October last there was one class with a register of over 140 ; there were three classes with registers between 130 and 140 ; fourteen classes with registers between 120 and 130 ; eleven classes with registers between 110 and 120 ; fifteen classes with registers between 100 and 110 ; fourteen classes with registers between 90 and 100 ; twenty-four classes with registers between 80 and 90 ; sixty classes with registers between 70 and 80, and two hundred and eighteen classes with registers between 60 and 70. In all there were 360 classes whose registers exceeded the highest limit at which effective teaching is possible. In some localities there is plenty of room ; the class-rooms are not crowded. In nearly all the newer sections of the city, however, the crowding is appalling."

By-laws adopted several years ago provide that :

" (14) The seats in all new school buildings, hereafter to be erected, shall be placed so as to allow at least 12 square feet of floor space and 200 cubic feet of air space for each primary pupil, 14 square feet and 225 cubic feet for each grammar grade pupil below the fifth grade, and 18 square feet and 250 cubic feet for each grammar grade pupil above the sixth grade, and no new school building shall be erected which does not provide out-go and in-come air flues of sufficient size so planned as to insure a change of all air of each school-room in said building from three to six times per hour.

" (15) The maximum number of sittings to be placed in a primary class room, in any school building to be erected, shall be 56 ; in grammar class rooms below the fifth grade, 48 ; and in grammar class rooms above the sixth grade, 40.

" No seats in any school building to be erected shall face the windows ; and all rooms hereafter to be furnished shall be supplied with single desks and seats, and no principal shall, under any circumstances, permit desks and seats to be occupied by more than one pupil at the same time.

" (18) *On Health.*—This Committee shall consist of five members, whose duty it shall be to take into consideration all questions affecting the healthfulness of school-houses and the health of pupils and teachers, and to report upon such subjects in this relation as may be referred to them by the Board ; to make such recommendations and reports, from time to time, as they may deem promotive of the health of pupils and teachers ; to prepare such schedules for, and require from the teachers such records and memoranda as they may consider necessary to elicit information for the promotion and protec-

tion of the health of those who attend the schools, when directed by the Board of Education ; and in conjunction with the Local Committee, to carry into effect such measures, in this regard, as may be approved by the Board."

On this last committee for the year under review there were and had been for several years previous two physicians—one of them the Commissioner of Health. There is also a by-law on heating and ventilating, and a standing committee of seven members to consider all matters pertaining to the subject. That the abominable stunting system described in the report obtains, notwithstanding the by-laws, is due to the narrow-minded ambition of seventy-eight local committees, and especially to the chairmen thereof into which the fifty-one members of the Board of Education are divided, consisting of from three to five members each, each one of these committees being to a great degree an independent board for the supervision of certain school-houses. To be chairman of a primary school-house committee is regarded by the members as of little honor and of considerable less patronage than of a grammar school. And this distinction appears to be regarded as of more importance by those who make the by-laws and breaches of them at pleasure, than a sufficient amount of fresh air to the primary pupils by the needful and easy reduction of a sufficient number of the school-houses used for the grammar grades, and still leave them sufficient accommodation, to exclusive use for the primary classes. But the superintendent, with full knowledge of all the circumstances, concludes that, as the intelligence of the Board of Education is unequal to the task of co-ordinating the amount of fresh air necessary for one pupil to the supply of three in the primary schools, outside assistance is required.

"Ventilation," he reports to the Board, though equipped with standing committees on health, heating and ventilating, whose special duty it is to attend to such matters, "is a matter of importance so vital to the intellectual advancement of children, as well as to their physical well-being, that your Board would, in my judgment, be amply justified in having a thorough investigation made of the sanitary conditions of our schools by a commission of experts."

Verily this suggestion is very suggestive. The committees

referred to consist in part of physicians, engineers, and philosophers (?). But that a commission to consist of *one* well-paid expert required to devote more than fifty-one times as much time and talent, to the well-being of the school children in Brooklyn as is now used by the fifty-one members of the Board of Education, would be a great improvement on the superintendent's suggestion, can scarcely be doubted by any one abreast with the needs of public education and familiar with the deficiencies of the Brooklyn system.

THE REPORT OF THE COMMISSIONER OF EDUCATION FOR THE YEAR ENDING JUNE 30TH, 1889,* recently issued, is comprised in two closely printed and statistical volumes of over 1700 pages of universal interest. It opens with a general survey of the educational field, together with comparative tables showing the trend of progress for a period of years. Next follow various exhibits showing the position occupied by the United States as compared with Germany and France in respect to the provisions made for elementary and higher education; and this is followed by condensed statements exhibiting the outlines of national systems of education.

The total number of pupils enrolled in schools of all grades, public and private, in all the States of the Union, for the year ending June 30th, 1889, is 13,726,574. In this number is not included the attendance on evening schools or schools of art, manual and industrial training, trades, business, or schools for the reflective, dependent, and delinquent classes or schools for Indians. These included (in the aggregate 288,280 pupils) would swell the total to over 14,000,000 persons who were receiving education in school for a longer or shorter period during the year. The number of persons in the United States between the ages of six and twenty years, inclusive, is 34 per cent of the whole population. This gives for the year 1889, 20,700,000 children of school age, of whom 67 per cent (14,000,000) attended school. The average attendance is estimated at seventeen weeks annually for each pupil for a period of ten years. The length of the school term, however, is shown to be much longer in the Northern than in the Southern

* Washington : Government Printing Office, 1891.

States, being over 150 days in the former and less than 100 in the latter. The average attendance in both sections is about 65 per cent of the number of pupils enrolled, and this reduces the actual amount of schooling received by the total number to about one hundred days in the Northern States and sixty days in the Southern. The sparsely settled country districts usually have short annual school terms, and this is the chief reason why the Southern States make so poor a showing in this respect. On the other hand, the Southern States indicate a great and increasing interest in public-school education by the very large per cent of their population enrolled; showing in this respect quite as good results as the Northern States.

With regard to the grade of education, less than six pupils in the hundred are returned as pursuing secondary and higher education, the remaining ninety-four being engaged upon the elementary course in reading, writing, arithmetic, geography, grammar, and United States history. One in five hundred of the whole enrolment is enrolled in schools for higher instruction.

The comparison with the German and French schools shows that, while the enrolment of all the pupils who have attended school for any portion of the year is larger in the United States than in the foreign countries, the proportion of pupils in those countries pursuing higher studies is much larger than that returned for the United States. Comparison of the courses of study shows that the French and German devote much less time than the Americans to the study of orthography. This disadvantage to the Americans is attributed to the peculiarities of the English language rendering memorizing more necessary.

The educational systems of foreign countries severally are summarized. Special chapters are devoted to the education of teachers, elementary schools of cities, industrial training, religious instruction, compulsory education, etc.; college courses and schools of science; so completely comprehending the whole subject of practical education as to afford an immense amount of food for thought, not only for all who are engaged in it, but for all who enjoy its benefits.

HIGHER EDUCATION IN INDIANA* is a historical monograph comprising an outline of the free school system of the State from its beginning in Territorial times to the present. It divides the subject into three distinct periods. First, from 1787, until the adoption of the first Constitution at the time of the admission of the State into the Union, 1816. Second, the time of the operation of the old Constitution from 1816 to 1851; and third, from 1851, when the new Constitution was adopted, until the present time.

The history of the first period is a biographical sketch of the pioneers and their acts under the fostering care of the Federal Government to lay the foundation for future education under the care of the State, from which lessons may be deduced of practical utility now. The second describes the preparatory steps in the fulfilment of the law providing for free education; and the third period, since 1851, marks the progress that had been made up to and since that time in enlarging and systematizing the work, by the enactment of such additional laws as progress has rendered necessary, comprehending all the higher grades of education and placing the educational advantages of the State on a par with those of the older States.

CITIZEN SCHOOLS WANTED.—“As one reads the account of the Christian Endeavor movement in the churches, and is touched by the fine enthusiasm of these thousands of young people, one feels—many at least must feel—that such a movement would be vastly stronger, and that the members of the societies would develop in themselves a sturdier manhood and womanhood, if the civic consciousness were cultivated more and the thought of civic duties had more prominent place,” says Edwin D. Mead at his Editor's Table in the June *New England Magazine*. “There is always danger in every such movement of stirring up emotion that shall eventuate in nothing. The leaders of this great movement, which we do not wish here to criticise but to applaud for the good that is in it,

* Bureau of Education, Circular of Information No. 1, 1891. Contributions to American Educational History. Edited by Herbert B. Adams. No. 10, Higher Education in Indiana. By James Albert Woodburn, Ph.D., Professor American History in the Indiana University, etc. Washington: Government Printing Office.

are surely alive to this ; they have, doubtless, many times warned their young people of the danger. Prayer itself is too often a danger and a weakness to some young people, and to some old people—because it becomes a spiritual *indulgence* and gets looked upon as a *virtue* that may take the place of stalwart moral and social effort. Prayer is good for nothing in an able-bodied man unless it goes hand in hand with work. 'Faith in God, faith in man, faith in work—this,' said Lowell in his noble essay on 'New England Two Centuries Ago,' 'is the short formula in which we may sum up the teaching of the founders of New England, a creed ample enough for this life and the next.' The New England sons of the New England fathers should always remember this and remember all of it. It is a pleasure to note that the leaders of this Christian Endeavor movement have faith in work—that more and more, as the movement has developed, they have seen that the prayer-meeting side must not be given too great place, but that the young people must be set to work. We could wish that their interest in affairs, their sense of obligation to the community as a whole, might be further stimulated. We could wish that every Christian Endeavor Society might become a Good Citizenship Society."

THE HARVARD MEDICAL SCHOOL ASSOCIATION has issued an interesting and valuable list of its members, which it will be glad to send to graduates of the Medical Department of Harvard University, in whatever part of the world they may be. The Association was formed about one year ago, and *all* graduates of the School are eligible to membership. The object is to unite all alumni and to advance the interests of the school and of medicine. The entrance fee and the annual assessment are merely nominal.

OF THE EDUCATION OF THE NEGRO, says Dr. William T. Harris, Commissioner of Education, in an article under that title, in the June *Atlantic* :

"With the colored people all educated in schools and becoming a reading people interested in the daily newspaper ; with all forms of industrial training accessible to them, and the opportunity so improved that every form of mechanical

and manufacturing skill has its quota of colored working men and women ; with a colored ministry educated in a Christian theology interpreted in the missionary spirit, and finding its auxiliaries in modern science and modern literature—with these educational essentials, the negro problem for the South will be solved without recourse to violent measures of any kind, whether migration, or disfranchisement, or ostracism. Mutual respect for moral and intellectual character, for useful talents and industry, will surely not lead to miscegenation, but only to what is desirable, namely, to civil and political recognition."

CHRISTIAN EVOLUTION.—St. George Mivart, who for forty years has been known to the public as an ardent student and thoughtful writer upon all subjects connected with evolution, begins a series of papers in the June *Cosmopolitan*, in which he sets forth the conclusions he has reached in regard to the great theory of natural selection and its philosophical bearings upon the religious thought of the day.

PRESENT EDUCATIONAL PROBLEMS will be a stimulating article contributed to the *Popular Science Monthly* for July by Mrs. H. M. Plunkett. It is entitled "Kindergartens—Manual Training—Industrial Schools," and embodies some principles of training children that have not yet been duly appreciated.

PHYSICAL CULTURE, a manual of home exercise, published by A. G. Spalding & Bros., New York, is a pamphlet which any one can obtain by sending ten cents' worth of postage stamps to the publishers. And by practising its precepts a health-giving bank account may be secured of lifelong benefit. The improved Victor Machine, which it describes, is a practical pulley-weight apparatus for all around, every-day physical exercise. A few pulls at this in the morning is invigorating, healthful, and a tonic available to everybody ; noiseless in action, easy and smooth in running, and so simple in construction that anybody can adjust it on either side of a closet door when wall space is not available.

NOTES ON BEAUTY, VIGOR, AND DEVELOPMENT is a brochure of twenty pages of much practical utility to sensible

people who are always on the lookout for means promotive of health, and will be sent to any one by the publishers—the Fowler & Wells Co., New York—for ten cents' worth of postage stamps.

INTEMPERATE EATING AND DRINKING, says Mrs. A. R. Aldrich, in *Harper's Bazar*, are not the only intemperate habits that seem to be part of our social fabric. There is an incalculable waste of feeling, of emotion, and will, and the power lost in these various channels of life tells the whole story, if we would trace it back, of the undirected or misdirected energy at the outset. A child whose habits of eating, of sleeping, of dressing, and of talking are controlled by the real needs of life, and regulated with taste and discretion, will never need the good offices of a temperance society nor legislation to save him from ruin. His salvation was a foregone conclusion, because all the possibilities of his life were led in orderly activity to the threshold of his conscious personality.

What we most need is to be saved from ourselves, or, better to express the same thing, to be lifted into our best selves by adjusting the emotions, appetites, and tendencies when they are plastic and can be moulded.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS held its second triennial meeting in Washington, D. C., September 22d–24th, 1891. The Transactions* are comprised in a volume of two hundred and thirty-six pages of minutes of the sessions, papers read and the discussions thereon, lists of the guests, members and component associations of the Congress. Of the associations which compose the Congress, fourteen were present and participated. All the important branches of medical science, with the exception of obstetrics, were adequately represented. As remarked in the minutes :

“It is no light matter to share in an organization which stands for so much as does this Congress of American Physicians and Surgeons. It is through the participating societies alone that membership in it is to be acquired. So that, while

* Transactions of the Second Triennial Session of the Congress of American Physicians and Surgeons. Vol. II., 1891. Published by the Congress. William H. Carmalt, M.D., Secretary, New Haven, Conn.

doubtless each society has already been watchful as to the scientific qualifications of every applicant for admission to its ranks, it is to be hoped that this watchfulness will be doubled by the remembrance that such admission carries with it the right of membership in this larger and more strictly scientific body. . . . Our great series of local, county, and State societies, culminating in the powerful American Medical Association, form a representative system which we regard as the most perfect possible for the entire profession ; and to this there has been added a series of national special societies, and the conjunction of these in the present Congress."

Of the subjects considered, none could be of more interest to sanitarians than "Conditions Underlying the Infection of Wounds ; Including a Discussion of Disinfection with References to Treatment of Wounds, of the Relation of Bacteria and of the Effects of Antiseptic Agents on Wounds," introduced by Professor William H. Welch, of Johns Hopkins University ; contributed to by Professor Roswell Park, of the University of Buffalo, on "Wound Infection ;" by Arpad G. Gerster, M.D., of New York, on "Aseptic and Antiseptic Details in Operative Surgery ;" and discussed by Mr. Thomas Bryant, Senior Surgeon at Guy's Hospital, London, Professor John Cheine, M.D., of the University of Edinburgh, Drs. A. T. Cabot and H. C. Ernst, of Boston, and others. The other special subjects elaborately considered were "The Late Manifestations of Syphilis" and "Fibroid Processes."

The President's address—S. Weir Mitchell, M.D., LL.D.—on the "Early History of Instrumental Precision in Medicine" is an illustrated paper of much practical interest to all physicians.

Taken altogether, the volume is indicative of an eminently successful organization of the best elements in the medical profession.

THE MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF MARYLAND is one of the oldest State medical organizations in the United States. The Transactions * of the Ninety-third Annual Session, held at Baltimore, April, 1891, are comprised

* Transactions of the Medical and Chirurgical Faculty of the State of Maryland, G. Lane Taneyhill, M.D., Secretary, Baltimore, Md.

in a volume of nearly four hundred pages. The address of the president, Dr. T. A. Ashby, of Baltimore, was on "The Interests and Aims of the Medical and Chirurgical Faculty of the State of Maryland," in which he refers to the time, three quarters of a century ago, when the faculty was the great and only regulating body in the State, and its authority conveyed the only legal right to practise medicine in Maryland. Quackery, empiricism, and irregular methods were kept down, and the work of the profession was conducted almost exclusively by men who enjoyed the confidence of this faculty, and possessed its authority to engage in medical work.

While the faculty has never lowered its principles or compromised its opinions by association with ideas or "isms" derogatory to the highest standing of professional morality and ethics, its influence has become greatly impaired by purely local interests connected with its meetings, resulting in the formation of narrow professional cliques ambitious for political preferment, regardless of the judgment of the main body of the profession. To reform this decadence of influence, the faculty is urged to energetic co-operation and effort throughout the State.

Of about a dozen special papers and reports contributed to the Transactions, there is one only, on "Immunity and Protection from Disease," by Dr. W. B. Canfield, of Baltimore, related to preventive medicine. It dwells in particular upon the liability to disease from floating matter in the air, and the antagonizing functions of the phagocyte blood cells. But nothing new is added to common knowledge on the subject.

DISREPUTABLE, quoth the *Medical Record*, is the only expression applicable to the action of the Ohio Legislature, recently, as reported by the *Lancet-Clinic*, giving two samples of the mental calibre of that body: First, it refused to pass a bill intended as a measure to regulate the practice of medicine in the State, and second, it made an appropriation of \$5000 for the purpose of testing the value of the so-called cure for drunkenness; each member of the House to nominate one man upon whom the treatment should be tried.

The two actions give a very clear idea of the intelligence of the Legislature, and force us to the conclusion that they have

great sympathy for the ambitious but dishonest vendor of secret remedies, while for the body of honest and honorable men who are trying to practice medicine in a legitimate manner they have only contempt.

It would have been just as reasonable for them to have appropriated money to test catarrh, pile, and gonorrhœa nostrums, and the public would have received just as much benefit as from the special method chosen. When the law-making body of a State goes into the quack-medicine business, how can we ever expect the people to receive protection against impostors?

The contumely heaped upon the physicians of Ohio was bad enough, but when the latter step was taken we felt it to be a useless endeavor to influence such men in favor of scientific medicine. We trust a large number of the members of the Legislature will choose themselves for patients, and receive generous injections of—not necessarily gold—but of something they sadly need.

“DISEASES OF THE EYE” are now rarely treated of with such fulness in medical works on general practice as to satisfy the requirements of students, or even as reference books in the ordinary needs of physicians. Hence it is that special works, such as one now before us,* are necessary to all medical students and medical practitioners who would be abreast with the advances made during recent years in this branch of medicine.

The general plan of the book is practical, and the methods of examining eyes and the symptoms, diagnosis and treatment of ocular diseases and refractive defects are everywhere brought into prominence. Special attention is given to clinical practice; and the methods of examination, the symptomatology leading to a diagnosis, and the treatment of the

* *A Hand-Book of Ophthalmic Practice.* By G. E. de Schweinitz, M.D., Professor of Diseases of the Eye, Philadelphia Polyclinic; Ophthalmic Surgeon to Children's Hospital and to the Philadelphia Hospital; Ophthalmologist to the Orthopædic Hospital and Infirmary for Nervous Diseases; Lecturer on Medical Ophthalmoscopy, University of Pennsylvania, etc. Royal 8vo, pp. 650, with over 200 wood-cuts, many of which are original, and 2 chromo-lithographic plates. Price, cloth, \$4; sheep, \$5. Philadelphia: W. B. Saunders.

various ocular defects are brought into special prominence. The sections devoted to optical principles and the normal and abnormal refraction of the eye in large portion, are by Dr. James Wallace, Chief of the Eye Dispensary of the University Hospital, Philadelphia. The chapter devoted to the application of the shadow-test is by Dr. Edward Jackson.

The systematic directions for recording each case of ocular disease and for making the examinations necessary to lead to an accurate diagnosis, beginning with direct inspection of the eye and passing in review one method of precision after the other until all the functions of the organ have been investigated; the careful pointing out of the indications for treatment, and the detailed methods of treatment, both medical and surgical; and the explicit directions for preparing a patient, the hands of the surgeon, the dressings, and the instruments preparatory to an operation, and the detailed description of the steps of the important operations, are given with praiseworthy particularity, well calculated to lead to the best results. The colored plates and wood-cuts—indeed, the mechanical execution of the work in all respects—are of standard excellence.

“SURGICAL HANDICRAFT”* is an unusually comprehensive manual of 600 pages, large 12mo, concerning the whole range of practical surgery; and not only so, it is a no less excellent summary and guide for the general medical practitioner with reference to emergencies. While the work throughout is remarkable for conciseness of statement, it comprehends all the advancement made by the more elaborate authorities of recent years fully up to date. The illustrations are lifelike in their excellence and admirably well chosen. It differs in scope from all previous works on minor surgery with which

* A Manual of Surgical Manipulations, Minor Surgery, and other Matters connected with the Work of House Surgeons and Surgical Dressing. By Walter Pye, F.R.C.S., Surgeon to St. Mary's Hospital and the Victoria Hospital for Sick Children; late Examiner in Surgery at the University of Glasgow. Upward of 300 illustrations on wood.

First American edition from the third London edition, revised and edited by T. H. R. Crowle, F.R.C.S., Surgical Register to St. Mary's Hospital, and Surgical Tutor and Joint Lecturer on Practical Surgery in the Medical School. Price, cloth, \$3.50; leather, \$4. New York: E. B. Treat.

we are acquainted, by the presence of special chapters on important subjects not usually treated of in works of this kind.

COCA has long been used by South American Indians as a sedative toxicant. A little more than thirty-years ago the plant became the subject of chemical study, and used to more or less extent as a medicine. And as long ago as 1859 Niemann succeeded in extracting from some leaves of the plant (*erythroxylon coca*) a crystallized alkaloid which he called *cocaine*. But little attention was given it until the communications of Köller, of Vienna, on "Coca and Cocaine," appeared in 1884. But for a succinct history of the plant,* its use by the natives where it grows, the scientific study of its effects, chemical analysis, the elucidation of its potent alkaloid—cocaine—and above all, of the preparation and use of the wine of cocoa, *par excellence*, *Vin Mariani*, special credit is due to Mr. Mariani, who was the first to introduce it. To all who would understand the therapeutical value of coca and its preparations in detail, and particularly the excellent qualities of *Vin Mariani*, Mr. Mariani's book is recommended.

REPORT OF THE FOURTH INTERNATIONAL PRISON CONGRESS, HELD AT ST. PETERSBURG, JUNE, 1890, by C. D. Randall, Official Delegate from the United States, is the subject of Circular of Information No. 2, 1891, of the Bureau of Education, Washington, D. C. It comprises a statement of the objects of the Congress, the progress and movement of prison reform and prison statistics of Russia. The history of prison congresses and a sketch of the special subjects discussed at them—education and crime, intoxication and crime, incorrigibility, contract systems, etc.—and some excellent reports and papers in full. Of these, that of Dr. A. Motet, medical expert of the tribunal and the court of Paris, is particularly noteworthy, for the distinctions he makes in the degrees of drunkenness and the corresponding liability to punishment, which we shall endeavor to make room for entire ere long. So, too, the address of Mr. Tancred Canonico, a distinguished senator of Italy, on "Prison Reform," and the *résumé* of Pro-

* "Coca and Its Therapeutic Application." By Angelo Mariani. With Illustrations. Second Edition. New York: J. N. Jeros, 52 W. 15th St.

fessor Spassowitch's sketch of the life and works of the great philanthropist, John Howard, a never-dying subject of interest to all who reflect on means of ameliorating the condition of prisoners or promoting their reform.

LAND OF THE LIVING CLIFF DWELLERS.—A deep ravine cutting in at right angles to the Baco chic [in Chihuahua, Mexico] closed our way to the north as we ascended the winding trail, and when we had worked our way up the steep bank some 200 or 300 feet, a favorable exit from the low, scrubby pines gave me an opportunity to look straight across this picturesque ravine, and I was surprised to see, on the other bank, which seemed even more precipitous than the one on which I stood, a deep cave walled up in front nearly to the top, and evidently indicating cave or cliff-dwellers. My first thought was that the curious habitation in front of me belonged to the era of similar buildings in Arizona and New Mexico, which the best authority consigns to a very old period. With me, however, was a Mexican gentleman who said that the cave was inhabited, but as the occupants were extremely timid, probably we would not be able to see them without forcing an entrance into their strange home. He believed that most of them were inside peeping at us over the rude walls and around the very dilapidated animal's hide that served to close the door. The cave was not over two hundred yards away, and, with the aid of our field-glasses, we could plainly make out its details.

My impressions led me to the theory that these were vagabond individuals of the local Indian tribes who were occupying this old cave-dwelling in the cliffs, much as we see the corresponding class with us occasionally occupying dugouts, shanties built into the side-hills, and even caves around the suburbs of towns. But one of the Mexicans, who argued against forcible intrusion into the homes of these people, said that we would find a great number of them farther on in the deep recesses of the Sierra Madre range, and that among so many we would have good opportunities of seeing them to better advantage than we possibly could here. My Mexican friend was born and reared in this part of Chihuahua; his father and uncle owned one of the largest and richest mining

districts in that portion of the Sierra Madre toward which our course was directed, and to reach which he attached himself to our party for a couple of days, when our paths separated. His business called for almost constant travelling in these parts. He placed the number of living cliff and cave-dwellers in this part of Mexico at from 9000 to 12,000 persons. We afterward saw from 300 to 500 of them, which, considering their great timidity and the small part of their land traversed by us, would give an air of reasonableness to the estimate of Don Augustin Becerra, for such was my friend's name.

Even as we stood on the edge of the cliff opposite this singular home, we saw an Indian in the cañon far below. He appeared to be wearing only a breech-clout of animal skins; he carried a long bow and arrows. He looked almost as dark as a Guinea negro as he skirted the shadows of the cañon, and his hair was long. A rattling of the falling chips of shale drew his attention to us, when he at once skulked behind a big boulder at the base of the cliff, and we saw him no more.
—*Frederick Schwatka, in the June Century.*

"BLANKS," every business man knows, indicate a great variety of labor-saving instruments, such as deeds, leases, writs, executions, etc., comprising all needful obligations and technicalities, according to law, with spaces left for the insertion of items, descriptions, names and dates, as required to bind agreements and obligations. What such blanks are to lawyers and real-estate dealers, Palliser's Specifications are to architects, engineers, contractors, builders, and the trades—complete and practical specifications covering all essential points, with blank spaces left for details. Printed on one side of linen paper, 9 × 14 inches in size, suitable for filling in blanks with pen and ink, handsomely bound in paper cover, with fastenings, etc., for pocket use. Price, 50 cents per set, or \$4 per dozen. Palliser, Palliser & Co., Architects and Publishers, 24 East Forty-second Street, N. Y.

PAMPHLETS, REPRINTS, REPORTS, ETC., RECEIVED.

Bulletins 35, 36, and 37: Combinations of Fungicides and Insecticides, and some new Fungicides; Effect of a Grain

Ration for Cows at Pasture; Sundry Investigations made During the Year (1891): Cornell University Agricultural Station, Ithaca, N. Y.

Public Water Supply of Cincinnati—Report of an Investigation by a Committee of the State Board of Health. C. O. Probst, M.D., Secretary, Columbus, O.

Water as a Local Anæsthetic. Robert H. M. Dawbarn, M.D., 105 West Seventy-fourth Street, New York.

Medical Hæmorrhage Surgically Treated. *Ibid.*

Inguinal Hernia. Alexander Dallas, M.D., New York.

Notes on Treatment of Catarrhal Inflammations. Beverly Robinson, M.D., New York.

Addresses and Essays. G. Frank Lydston, M.D., Chicago, Ill.

Relation of Orthopædic Surgery to General Surgery. Newton M. Shaffer, M.D., New York.

Mouth Breathing not the Cause of Contracted Jaws and High Vaults. Eugene S. Talbot, M.D., D.D.S., Chicago, Ill.

Disposal of Waste and Garbage—Report of Committee, American Public Health Association. Irving A. Watson, M.D., Secretary, Concord, N. H.

Land Liberation as a Public Health Measure. George Homan, M.D., St. Louis, Mo.

Laryngeal Cough Succeeding la Grippe. William F. Waugh, A.M., M.D., Philadelphia, Pa.

Influence of Heredity in Producing Disease and Degeneracy. The Remedy. Gonzalva C. Smythe, A.M., M.D., Greencastle, Ind.

Tuberculin. The Value and Limitation of Its Use in Consumption. Charles Denison, A.M., M.D., Denver, Col.

Empiricism—Rational Practice—Practice under Guidance of Law. Charles S. Mack, M.D., Ann Arbor, Mich.

Cremation of Night Soil and Garbage. Engle Sanitary and Cremation Co., Des Moines, Ia., and 30 State Street, New York.

The Bicycle in the Treatment of Nervous Diseases. Græme M. Hammod, M.D., New York.

Indications for Colotomy. Charles B. Kelsey, M.D., New York.

OBITUARY.

DR. ALFRED CARPENTER, of Croydon, for several years correspondent of and contributor to *THE SANITARIAN*, died on January 27th, 1892, at Ventnor, Isle of Wight, after a few days' illness. He was a prominent member of the British Medical Association and an authority on sanitation. He was born at Rothwell, Northamptonshire, May 28th, 1825, his father being a medical practitioner of that place, and in 1847 he entered St. Thomas's Hospital. He was the first student who gained a scholarship at that institution, and he also held in succession the posts of resident accoucheur and house surgeon. He took the M.R.C.S. and L.S.A. in 1851, and in 1852 became associated in practice with the late Dr. Westall, of Croydon, where he subsequently continued to reside. He graduated M.B. at the University of London in 1855, and M.D. in 1859. In 1859 he was appointed a member of the Croydon Local Board of Health, on which he continued to serve, acting occasionally as chairman, until his election as President of the Council of the British Medical Association in 1879. In 1870 he was appointed a magistrate for Surrey. Dr. Carpenter filled numerous local offices of importance, and he also took an active part in the establishment of the Croydon Cottage Hospital, and of the Croydon Provident Dispensary. In 1878 he was Orator of the Medical Society of London, and had been a member of various medical and sanitary societies. Dr. Carpenter was Examiner in Public Health in the University of London, and a member of the Court of Examiners at the Apothecaries' Company. In 1881 he was nominated a member of the Royal Commission appointed to inquire into the condition of the London Hospitals for small-pox and fever cases, and into the means of preventing the spread of infection. Among his literary productions are: "A History of Sanitary Progress in Croydon," 1856; "Hints on House Drainage," 1866; "Physiological and Mechanical Aspect of Sewage Irrigation;" "Alcoholic Drinks as Diet, as Medicines, and as Poisons;" "Influence of Sewer Gas on Public Health;" "Causation of Epidemic Disease;" "Address on Public Medicine," delivered before the British Medical Asso-

ciation at Sheffield in 1876 ; " The First Principles of Sanitary Work ;" a paper on " Fogs and London Smoke," read before the Society of Arts in November, 1880 ; " Health at School ;" and a series of articles on " School Surgery," in the *Practical Teacher*. " The Utilization of Sewage," in THE SANITARIAN for February, is believed to have been his last paper.

NEWS AND MISCELLANY.

THE COMMITMENT AND CARE OF LUNATICS IN THE STATE OF NEW YORK.

In order to correct certain misapprehensions that now exist relative to the commitment and the care and treatment of the insane, the State Commission in Lunacy invites the attention of physicians to the following matters :

1. *The Commitment of the Insane.*—By the statute no insane person can be admitted to an institution for the care and treatment of the insane except upon a medical certificate of lunacy, made jointly by two physicians, under a form prescribed by the State Commission in Lunacy. The form at present in use went into effect July 1st, 1890, and commitments can now only be made under such form and upon blanks prepared and furnished by the State. These blanks can be obtained upon application to the State Commission in Lunacy, County Clerks, Superintendents of the Poor, and Superintendents of asylums or hospitals for the insane, both public and private. The medical certificate must be filled out strictly according to its terms in order to secure the commitment of a patient. There must be a final examination of the patient on the same day by both certifying physicians, although the final examination need not be conducted by each physician in the presence of the other. *The date of the final examination is the date of the certificate.* A patient can be admitted under such medical certificate at any time within ten days from its date, namely, the date of the final examination. While a patient may be admitted upon such certificate prior to its approval by a judge of a court of record, the patient cannot be detained more than five days without such approval,

and, therefore, it is advisable in order to avoid delays and a re-examination when such approval is not made within the required time, to procure the approval prior to the admission of the patient. The approval must be made by a judge of a court of record, of the county or judicial district in which the patient resides. If, however, the patient has no fixed residence within the State, then the certificate may be approved by a judge of a court of record of the county or judicial district wherein such patient may be. A medical certificate prescribed by the Commission is an absolute requisite to the commitment of a patient ; a judge, however, may require other and additional evidence. He may summon witnesses or additional physicians or may in his discretion call a jury in each case to determine the question of lunacy. Therefore, in order to avoid expense and delay, it is essential that great care should be taken in the preparation of such medical certificate. The statute provides that only such physicians as have been properly certified by a judge of a court of record, and only after a certified copy of their certificate of qualification has been filed in the office of the State Commission in Lunacy, can prepare such medical certificate. A medical certificate prepared by either one or both physicians whose certificate of qualification has not been filed in the office of the Commission is void by statute, and a re-examination of the patient must be had.

Section 2, Chapter 446, Laws of 1874, provides that : " It shall not be lawful for any physician to certify to the insanity of any person for the purpose of securing his commitment to an asylum, unless said physician be of reputable character, a graduate of some incorporated medical college, a permanent resident of the State, and shall have been in the actual practice of his profession for at least three years. And such qualifications shall be certified to by a judge of any court of record."

Section 7 of Chapter 283, Laws of 1889, as amended by Chapter 273, Laws of 1890, provides that : " One year after the date of the passage of this act (May 14th, 1889) it shall not be lawful for any medical examiner in lunacy to make a certificate of insanity for the purpose of committing any person to custody unless a certified copy of his certificate has

been so filled and its receipt in the office of the commission (State Commission in Lunacy) as above provided has been acknowledged."

2. *Public Patients*, except in the counties of New York and Kings, are required by the statute to be cared for in State hospitals situated within the hospital district in which they reside, the statute requiring that the State be divided into as many districts as there are State hospitals. A patient, however, who desires care and treatment in a State hospital situated beyond the hospital district in which he resides may be admitted to such hospital upon the following conditions :

a. When there is a vacancy.

b. In the discretion of the President of the State Commission in Lunacy and the Superintendent of the hospital to which the admission of the patient may be desired.

c. That any expense of removal beyond the limits of the hospital district in such case must be borne by said insane person's guardians, relatives or friends, as the case may be.

This statute is liberally construed, and in no instance has the consent of the President of the Commission been refused or will such consent be refused in any proper case. When applications are made by mail or telegraph to the office of the Commission, in Albany, such consent will be promptly given.

3. *Public Patients* from the Counties of New York and Kings may be admitted to any State hospital within the State, with the consent of the authorities of such hospital and the Commissioners of Charities and Corrections of either of said counties.

4. *Private or Pay Patients* may be admitted to any State hospital without reference to the hospital district in which they reside, upon the following conditions :

a. That there is room.

b. That the hospital authorities are willing to receive the patient.

c. That no patient shall be permitted to pay a sum in excess of \$10 per week.

The maximum sum of \$10 per week to be charged for the care and treatment of a private or pay patient in a State hos-

pital was agreed upon at a conference of the State Commission in Lunacy and the Trustees and Superintendents of State hospitals. This limit of price was fixed upon in order that the rights of the dependent insane for whom the State hospitals were established should not be encroached upon by patients who are able to pay a greater sum and who would require in return therefor a corresponding amount of room-space and other allowances which, in view of the constant demand for accommodations for the dependent insane, could not properly be accorded them. Each State hospital being established upon the principle of the greatest good to the greatest number, and recognizing no class distinctions, obviously no advantages, in the way of extra room space, etc., can properly be given, and especially in view of the fact that adequate and competent private care and treatment, both allopathic and homœopathic, can now readily be obtained for the non-dependent insane in private institutions, under the supervision of the State, for \$10 per week and upward.

All private institutions for the care and treatment of the insane are required by statute to be licensed by the State Commission in Lunacy, and the commission is empowered to revoke any such license in its discretion when proper cause exists therefor, and no insane person can be committed to any institution, retreat, home or sanitarium which is not so licensed.

T. E. MCGARR,

Secretary.

PROTECTION OF THE PEOPLE FROM QUACK DENTISTS, is an excellent law passed at the recent session of the New York Legislature, approved of by the Governor. It requires every dentist to register with the clerk of the county in which he practises, specifies thorough preparation for future tooth-pullers and compels them to secure the sanction of the Board of Censors of the State Dental Society before they can follow their profession. Violation of the law makes an offender liable to \$50 fine for the first offence and \$100 fine and imprisonment for future violations. It is in line with the scheme of the State Medical Society to regulate and control professional practice in this State.

UNITED STATES CIRCUIT COURT, EASTERN DISTRICT OF
LOUISIANA.

BATTLE & Co., CHEMISTS'	}	No. 11,995, IN EQUITY.
CORPORATION,		
<i>vs.</i>		
FINLAY & BRUNSWIG.		

This cause came on to be heard at this term, and was argued by counsel; and thereupon, upon consideration thereof, it was ordered, adjudged and decreed, as follows, viz.:

"That complainant has an established property right in the word 'Bromidia,' as a trade-mark applied to a certain liquid medical preparation mentioned in the bill of complaint herein, and that defendants have infringed the rights of complainant in the said trade-mark."

That the injunction issued *pendente lite* be maintained, and the defendants, George R. Finlay and Lucian N. Brunswig, copartners, doing business under the firm name of Finlay & Brunswig, and each of them, their clerks, servants and employes, be restrained and prohibited from printing, affixing or using the word "Bromidia," or any imitation thereof on the label of any medicinal or chemical preparation, or applying the name or title "Bromidia" to any medicinal or chemical preparation, and from offering for sale or giving away any bottles or packages marked with said word "Bromidia," or any imitation thereof, other than the preparation manufactured and labeled by the complainant; and that they be ordered and decreed to pay to complainant the profits of all such sales made by them, and all costs of this suit.

(Signed)

EDWARD C. BILLINGS,

April 23, 1892.

Judge.

Clerk's Office—A true copy.

(Seal.

E. R. HUNT, *Clerk.*

(April 23, 1892) By J. CARTER, *Deputy Clerk.*

DISREPUTABLE CERTIFICATES.—Advertisers in THE SANITARIAN will please take notice that the certificates and letters of persons known to the editor to be without respectable standing in the medical profession will not be admitted to its pages.

THE SANITARIAN.

AUGUST, 1892.

NUMBER 273.

THE PEOPLE AND THE PUBLIC HEALTH MOVEMENT—ADDRESS ON STATE MEDICINE.*

By J. BERRIEN LINDSLEY, M.D., Secretary of the Tennessee State Board of Health.

IN view of the great interest taken by the profession during the past year in the success of the measure brought forward by Dr. Comegys, I have thought that a succinct view of this important topic would not be inappropriate on the present occasion.

One day, while in attendance upon my second course of lectures in the University of Pennsylvania, session of 1842 and 1843, it chanced that in examining the rich and varied stores of literature at a second-hand bookstore my attention was arrested by an unpretending volume with a copious title-page, the gist of which was : "An Inquiry into the Sanitary Condition of the Laboring Population of Great Britain." I purchased the book and devoured the contents, and perhaps no other volume has so influenced the thoughts, studies, and pursuits of a long life as has that uninviting government document, for the "report" which it contained was the work of a master mind after mature investigation. Edwin Chadwick, the young and obscure secretary of the "commission" in that "report," made a mark upon the civilization not only of the British Isles and of the wide-expanded British dominions, but upon the entire world.

The report is dated London, May, 1842, and closed with conclusions : "First, as to the extent and operation of the

* Delivered at the Forty-third Annual Meeting of the American Medical Association, at Detroit, Mich., June 7th, 1892.

evils which are the subject of the inquiry ; secondly, as to the means by which the present sanitary condition of the laboring classes may be improved." These four concluding pages contain an admirable summary of practical public hygiene. No one now, fifty years after their date, can rise from the perusal without admiration of the genius which after two and a half years' study and observation elaborated them. As a practical application of the Baconian method of philosophy they may be placed alongside the celebrated essay of Dr. William Charles Wells upon the "Phenomena of Dew."

Fifty years ago the fearful ravages of Asiatic cholera among the poor or laboring people of the British Isles was still matter of general comment. At that time also the effects of the then recent revolution known as parliamentary reform were becoming manifest, insomuch that the wants and welfare of the people began to attract the attention of statesmen and party leaders, and have from that day to this been the main topics of legislation. The great feature of British history for the past half century has been the constant, steady elevation of the masses, and the one leading topic under this general head has been the public health. For proof reference is made to the acts of Parliament.

In 1853 the City of New Orleans was laid waste by an epidemic of yellow-fever without parallel in all its history. An able sanitary commission was appointed by the Board of Health to make a report on this epidemic, which was published by authority of the City Council in 1854. It is a large and carefully prepared octavo by able men. The treatise "Upon the Sanitary Condition of New Orleans," by Edward H. Barton, A.M., M.D., especially was widely commended. Undoubtedly it was of great service to the Federal Government during the occupation of New Orleans, 1862-66 inclusive, when the city was noted for its cleanliness and healthfulness.

In this creditable municipal document, New Orleans made a step forward, which, had it been kept up until now, would have placed it alongside Calcutta or Bombay, with a population of over half a million, and commercial relations with the wide world. The calamitous experience of Tennessee in 1878 and 1879 reawakened popular interest in New Orleans upon

local and maritime sanitation, and if the people do not go asleep, once more rapid progress toward its due position as one of the world's great cities may be expected.

One of the most remarkable examples of the people moving actively for sanitary reform is found in the "Report of the Council of Hygiene and Public Health of the Citizens' Association of New York, upon the Sanitary Condition of the City," published in 1865. This massive volume, truly a manual of practical sanitation, was got up under the guidance of some twenty-four eminent surgeons and physicians of New York, who constituted the "Council of Hygiene;" names known, honored, revered and loved by us all occur in this glorious list. With one accord they all assigned the foremost place to Elisha Harris, their secretary, who, with Joseph M. Smith, president, and Willard Parker, vice-president, constituted the executive of the council. Dr. Harris's report upon the local sanitation of the city, its defects and remedies, has always been regarded as a model.

The influence of the British example in sanitary reform is nowhere better seen than in Massachusetts, where in 1850 was published "Report on the Sanitary Condition of Massachusetts," by Lemuel Shattuck, an eminent writer and legislator. This highly educated and most public-spirited community was among the earliest to comprehend the far-reaching benefits of State or preventive medicine. It was the first to establish a State Board of Health, which for the most part it has liberally supported, and which has brought rich returns to the State in more ways than one.

It will thus be seen that in America as well as in Britain sanitary reform was inaugurated not so much by the medical profession as by the general public, looking at first to its protection from disastrous epidemics and next to relief from preventable diseases and improvement, in daily health. It may be looked upon as an outcropping of the well-defined tendency of the times toward the elevation of the people. An epoch-making tendency, germinated by the American Revolution of 1776, which startled the world, by that of France, 1789, and which by the general consent of thinking people of all shades of opinion is about to accomplish social results and changes, most likely improvements, not less in magnitude than was wit-

nessed in the fourth century, when Christianity supplanted paganism in the Roman world.

Though not a medical movement, yet from the knowledge required to put it forward medical men were naturally from the start called in by its promoters, and they soon took the lead. This is especially true in America, where in nearly every instance of city or State progress physicians have been the pioneers. So much is this the case that there is now some danger of the public looking upon sanitation as belonging exclusively to our profession. No greater mistake can be made. For it is law and not medicine that is most concerned. The prevention of disease and its cure are two very different affairs. Let every man be a law unto himself, every household a separate unit, and society would soon be reduced to savagism so far as health is concerned, while practitioners of medicine would reap a rich harvest. On the other hand, so soon as householders are contiguous every man becomes his brother's keeper and law must come in with its commands and its penalties.

Of recent years the medical profession has been endeavoring to remedy this error by calling in assistance through voluntary associations composed of all descriptions of persons, and with remarkable success. Medical science can dictate what kind of laws should be made for the promotion of the public health, but is powerless to enforce these laws. Here the people in their individual and collective capacity must act. They must realize that they are the government, and if the city is hideously unclean, so as to merit the chastisement of a dozen Rudyard Kiplings, and the little village so nasty that no one wishes to keep his family in it, they are alone responsible.

If time allowed we could fill pages with the enumeration of citizens' societies, from the American Public Health Association, founded in 1872, now embracing the entire North American continent, to the Ladies' Health Protective Association of the City of New York, established some twelve years later, and which has accomplished great good. These associations are doing much to correct the idea that sanitation is merely medical business. If as active and as potent for another decade as in the past one, that mistake will be eradicated.

A powerful auxiliary in this line is the influence of the maga-

zines and weekly publications. These abound in well-written and scientific articles on all topics of public no less than private hygiene. Medical science is fast becoming public property. The magnificent progress upon which we so much pride ourselves of late years is the result of advances in chemistry, physics and biology. These belong to the great republic of science and not to the mere province of medicine. We are the debtors of the scientists. Not they to us.

Medicine, like theology and law, is rapidly passing from the esoteric to the exoteric stage. It can no longer be a secret or mystic calling, looked up to with the reverence and fear begotten of ignorance. Hence it follows that if the profession wishes to maintain the position hitherto freely accorded it by the people as leading in sanitary reform, it must become a body of scientists. This it will be when in due course of time the improvements now rapidly taking place in the medical curriculum become universal.

At present the special topic connected with the sovereign people and its action upon the public health in which this body takes the most interest is the connection of the Federal Government with the work. Strangely enough, of all nations, the American republic is the most backward in looking to the public welfare as it respects health. And that, too, when there are certain great features which make the entire people one, with corresponding wants to be supplied, which only a rich and powerful government can effect.

No sooner were local boards of health tolerably numerous in the United States and the establishment of State boards well under way than the necessity of federal action was keenly felt, not only for co-ordinating and completing the work of these bodies, but also for accomplishing indispensable functions beyond the power and resources of our largest cities or most powerful or wealthy States. The argument for this Federal action is well stated by one of its earliest advocates, if he be not the first—the late Christopher C. Cox, M.D., LL.D., President of the Board of Health, Washington, D. C., who as far back as 1871 devoted much time and energy in making known his views. I quote from the first volume of “Reports and Papers of the American Public Health Association,” pp. 523, 524 :

“ Important as is the preservation of health and prevention of disease, both in regard to individuals and communities, and early as the subject forced itself upon human attention, public hygiene never, until a comparatively recent period, assumed its deserved position, or became entitled to consideration as a distinct science. The frequent and terrible invasions of epidemics, and the occasional increased violence of epidemic maladies, stimulated energy and research in the discovery of suitable means to prevent or modify the ravages of these relentless foes to health and life. The public mind became imbued with the imperative demand of such measures. Boards of health were everywhere established, the result of whose labors have been very largely aided by successful researches in the kindred sciences of physiology, pathology and chemistry. Who at this day questions the value of these local organizations ? ”

The idea of a central bureau of health is not, perhaps, altogether original with the author of this essay. More than fifteen years ago an able treatise was issued from the English press by Henry W. Rumsey, entitled “ Essays on State Medicine.” The original design of the work comprehended the establishment of a central sanitary board under government direction. The scope of the treatise was at first very extended, embracing the “ bearings of preventive medicine upon the several questions of general legislation, as education, public works, popular representation, agriculture, commerce, etc., and to inquire how far hygienic principles had been, or might be, recognized in the framing or executing of various measures of national inquiry and reform.” Since the publication of this work, England has organized a central health department, and is now seriously contemplating a ministry of public health. Prussia, under the direction of Bismarck, is now engaged in similar movements, while Germany has been long distinguished for her comprehensive national health code. The object of these efforts in Europe is what we desire to accomplish in this country, namely, the collection of the largest amount of correct information upon every subject connected with the public health, and sow it broadcast over the land for the benefit of the whole people.

Regarding the constantly increasing sanitary wants of our

country, its extensive geographical area and varieties of climate, its climatic zones marked by certain morbid peculiarities and endemic diseases, the thousand agencies and influences threatening its soundness, it occurred to me that our Government should advance among the first to conserve the health of its population and avert the disasters which menace it. With this view I prepared in 1871 the plan of a national bureau of health. This was subsequently submitted, as you are aware, at a meeting of sanitarians, representing the different sections of the country, assembled in New York, and indorsed by them in a series of commendatory resolutions. Since then an American Health Association has been organized, embracing in its membership the leading scientists and sanitarians in the United States and Canada ; and at their last meeting a special committee, of which I am chairman, was appointed to report upon the "necessity of a national sanitary bureau." I allude to these facts for the purpose of showing that I have not urged this subject prematurely before Congress, but after full and earnest interchange of views with others whose high standing entitles their views to credit and respect.

The American Public Health Association was organized in 1872 by a conference of prominent sanitarians. At this conference again brought his plan forward. At the first annual meeting of the association, Cincinnati, 1873, Dr. Cox made an elaborate report from which the above extract is taken. This report appears at length in the first volume of "Public Health," 1875. Thus it appears that the ideas of Dr. Cox were widely and persistently pressed upon the attention of sanitary leaders, and are still bearing fruit.

Had this effort been properly seconded by the medical profession, the bureau would doubtless have been established. Nothing came of it, and when the yellow-fever epidemics in 1873 and 1878, and also the widely spread devastation of cholera in 1873 terrified the land, no resistance was made.

However, this very helplessness aroused the people, especially those of the interior valley which had most suffered. At the Richmond meeting of the American Public Health Association, 1878, action was taken which resulted in the creation of the National Board of Health, by Act of Congress,

approved March 8th, 1879. Great pains was exercised to harmonize this board with the State and local boards. Its members appointed by the President were typical representatives of the profession. When organized on April 2d, 1879, these members chose as their president and vice-president two physicians of whom it is safe to say that they had the confidence and esteem of the whole country. This confidence was soon tested by the second Memphis epidemic, that of 1879, which broke out in midsummer. In co-operation with the Tennessee State Board of Health, Memphis was isolated, or quarantined, the destitute cared for and no spread of the disease allowed. Immediately upon its abatement, in conjunction with the Memphis authorities, the National Board entered that course of sanitary regeneration which has since made the said city a favorite example for sanitarians at home and abroad.

How it came to pass that after a few years just sufficing to prove its great capacity for good, it was starved to death, no one has satisfactorily explained. Perhaps it was owing to the fact of not being in the usual model of government offices at Washington. Had it been a bureau in the Department of the Interior, those familiar with Washington hold that it would now be in existence, and in a fair way to become a department with or without a seat in the Cabinet.

Concurrent with the decline of the National Board of Health has been the expansion of the Marine Hospital Service, which in some respects already represents the government in the field of preventive medicine. *De facto*, the United States Marine Hospital Service is one of the most important bureaus at Washington, both as to expenditures and duties. It has as its head an accomplished medical gentleman who owes his position to merit alone, and who is virtually a "Medical Commissioner of Health." Some have maintained that the readiest way to reach the desired end would be to change this service into a "Bureau of Public Health," leaving it what functions it now has and adding others. What is now the very important Weather Bureau of the Department of Agriculture began in a very insignificant way as the work of "the chief signal officer of the army." Truly a great oak from a little acorn. The overshadowing Postal Department

began in an equally obscure manner about a century ago. Prior to 1862 "agriculture" was hid away in the Patent Office, itself a bureau in the Department of the Interior. It then became a department with a commissioner at its head. Recently its head has become a secretary with his place in the President's Cabinet, and now it proudly holds its position as second to no other branch of the people's government.

Growth, or evolution, if you prefer, seems to be the law at Washington. Sooner or later the Department of Public Health will exist as a part of the national government. The department will embrace under its capacious folds several functions now partially filled by services attached to different departments. In the meantime the more efficient these services are rendered, the more complete will be our Ministry of Public Health when created.

Maritime quarantine is by common consent deemed a foremost duty of the Federal Government. The States have been tried and found wanting as safeguards against the importation of these pestilential exotic diseases, most feared by the American people. This duty in a partial way is now confided to the United States Marine Hospital Service. That instrumentality should, in this respect, be made perfect and thorough, fully equipped for watching all our immense lines of ocean, gulf, and lake coasts. This is so generally recognized that a very little effort by the profession speaking for the public would secure the necessary appropriation.

One great bureau in a department of public health would be that of vital statistics. This touches every man, woman, and child in all our 70,000,000 even more than does the Weather Bureau, which is an exceedingly popular concern with the people. Without vital statistics, reliable and not guesses, the servants of the public health are working in the dark. The birth-rate, the death-rate, the prevalence of diseases as shown by mortality tables are fundamental data for our guidance.

Reliance upon State efforts to furnish these is shown by the experience of more than half a century to be absolutely futile. There is an existing agency of the Government known as the Census Office in the Interior Department, which every ten years has an immense work in hand. For collecting vital

statistics this service should be perpetual. It is quite safe to estimate that an expenditure of about half a million of dollars annually would maintain a system of registration recording the wanted facts connected with each birth and death in the entire vast republic. This system of registration can easily co-operate with State and local boards, only it would be uniform and paid for out of the general fund. It is hardly necessary to elaborate this idea. The absolute necessity of such a registration for public health purposes and its manifold benefits to the business interests of all parts of the country are manifest to the most casual observer.

Another much wanted sanitary work directly within the province of the general Government is the execution of a minute topographical survey of the entire country, and the mapping its results on a scale so extensive as to embrace every important local feature. Such maps are needed by the agricultural, commercial, and military interests of the people. For all public health improvements these maps are indispensable. For health purposes the whole seventy, or it may be the one hundred and seventy, millions of the people constitute one family. The immense area of three millions and more square miles with its circumambient atmosphere is only one great big habitation. As the Weather Bureau keeps us constantly informed of aerial changes, so should the permanent features of the house be made known once for all by an analogous bureau, whose field is the land and the water in and around the land. Such surveys and such minute maps splendidly executed have long since been commenced or finished by Great Britain, Spain, and other European governments. Every advanced nation in the world recognizes the value of this work as a contribution to general science and as an aid to home development. It pays well and cannot be done by the separate fragments of a great country. It can be undertaken only by a great and rich people.

This survey and mapping has been commenced on a small scale and for two definite purposes, years ago by the United States Government. Under the Treasury Department there is the Coast and Geodetic Survey, which, under the superintendence of very able scientists, has accomplished results of immense value to the commercial and naval interests of

America. Extensive as is this survey, it is but an item in the great scheme outlined above, though the indispensable beginning of the same.

In the Department of the Interior we find the United States Geological Survey a complement to the last mentioned. The result of both these surveys combined make a useful whole.

There is a function of the national public health work which is now performed in a disconnected manner by several bureaus and offices at Washington. I refer to scientific researches and outfit of value to state preventive medicine, beyond the scope or the obligations, no less than the means, of the individual state. Such researches are made under special provisions in acts of Congress, sometimes by the Marine Hospital Service and its able corps of experts; sometimes by the Smithsonian Institution; at others by commissioners appointed by the President for a definite purpose. A recent result of the latter is the valuable cyclopædic "Report on Cholera in Europe and India," by Dr. E. O. Shakespeare, who was appointed by President Cleveland, October 1st, 1885, and who on November 17th, 1890, transmitted his great work to Secretary Blaine, after having given five years of travel and study to its preparation, "all voluntary and without pay for personal service." Perhaps there is no other instance of an individual holding the high appointment of commissioner from our National Government, acting in so patriotic and liberal a manner, and furnishing an example so worthy of imitation by men of means and culture. Well may the medical profession take an honest pride in such a worthy colleague.

The outfit of special interest and usefulness to the workers in sanitary progress at present furnished by the Washington Government without reference mainly to this purpose is two-fold. The Museum of Hygiene under the care of the Department of the Navy. This is a new establishment, which the support by meagre appropriations has already demonstrated a capacity for very valuable services. If the plans of those in charge are carried out, but a few years will elapse ere a constant stream of pilgrims will visit Washington from cities and towns in order to get practical knowledge which would otherwise cost long and tedious research. The medical profession should see to it that this very important museum is not overlooked by Congress.

But best known at present is the Library of the Surgeon-General's Office of the United States Army. Under this insignificant title, indicating a very limited use, has in a few years grown up one of the most complete medical libraries in the world. Also it is in buildings, equipment, volumes, and management a leading institution of the Union.

It has given honorable renown to our country among all scientists abroad. It is the great storehouse for information freely accessible to all who devote their energies to healing or preventing disease. Who would imagine that at this late day any statesman at all in contact with the 100,000 practitioners of medicine in these States would dream of reducing its modest allowance of \$10,000 per annum to the miserable pittance of one half that amount?

The general Government does far more for sanitary science than at first sight appears, or that it has credit for. This is evident from the above imperfect analysis of its disjointed work.

If a department of public health were now created, with its head holding a seat in the President's Cabinet, it could be at once furnished with an ample number of bureaus to give it a high place in the public esteem, and to keep that head fully as busy as any of its colleagues. The United States Marine Hospital Service, expanded as it ought to be, would furnish at least three bureaus with a number of drawers each. Namely, those of Marine Quarantine, the Marine Hospital and Scientific Researches. The Coast Survey, the Geological Survey, the Medical Library and Museum with the Museum of Hygiene would constitute also ample bureaus for first-class commissioners, while the Bureau of Vital Statistics would soon become almost a department of itself.

Let it be well understood that the elimination of all these offices from the departments, now looking after them in order to make up a great department of public health, can take place with no injury, but rather a relief to the present secretaries. The overburdened Treasury Department can readily spare the United States Marine Hospital and Coast Survey. So can that of the Interior, the Census Office and the Geological Survey. War has ample scope and verge enough without the Medical Library, as has the Navy without the Museum of Hygiene.

In looking over the transactions of the American Medical Association for the past twenty years one is impressed with its indifference to the work of the Federal Government in promoting the public health rather than otherwise. As late as 1877, the expressions were that it was too early to move in this direction, and that action should be deferred until State boards of health were generally created. The success of the American Public Health Association before Congress in 1878-79 proves that this was an erroneous idea, and that the people were ahead of the profession in sanitary progress.

At the Washington meeting of this body, 1884, Professor Deering J. Roberts, M.D., of Tennessee, in an elaborate address on "State Medicine," strongly argued for a Minister of Public Health. Had this thesis been taken up and pushed by the medical profession as it should have been, ere now the project would have been *un fait accompli*.

More recently the American Medical Association has become alive to the necessity of action. This is evidenced by the greatly increased interest taken in the section of State medicine, which for years had an existence almost normal. Also by the tone and substance of the addresses from our presidential chair.

Now there should be no uncertain action. The other chartered and national organization which for twenty years persistently worked on this line, and at one time with marked results, has a standing committee on "national health legislation." This committee is composed of eminent men from all sections of the great republic and is charged with the duty of keeping the subject before the national legislature. Would it not be well to have a similarly empowered permanent committee from this body, which acting in concert with the American Public Health Association, the American Association for the Advancement of Science, the Congress of Physicians and Surgeons and other scientific bodies, should do efficient service in advancing the cause?

In concluding this brief outline of a grand movement, let it be emphatically stated that of all the reforms projected and pushed in this busy nineteenth century, none touches the great masses more closely than this. The people, the working and voting people, are with us. Read the manifestoes of

the numerous labor organizations of America in which are gathered not only the sinews but the brains of a mighty people, and you will see that as a keynote running through the whole diapason, the sacredness and value of home, of wife and children, and hence constant allusions to sanitary wants and improvements. No better sign for the future permanence, grandeur and happiness of the greatest nation upon whose domain the sun has yet shed its rays could be desired.—*Journal American Medical Association.*

THE SECRETARY OF PUBLIC HEALTH.

REPORT OF THE SPECIAL COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION APPOINTED TO PETITION CONGRESS TO CREATE A DEPARTMENT AND SECRETARY OF PUBLIC HEALTH.

THE undersigned, appointed at the last meeting, to memorialize Congress on the subject of a department and a Secretary of Public Health in the Executive Department at Washington, beg leave to report progress in their undertaking.

Soon after the adjournment of the last meeting, your Committee began to consider the form and terms of the petition to Congress, which should set forth as briefly as possible the great importance to the public welfare of a central office of public health and a medical secretary of the same, on the same plane of rank and dignity as is accorded to the other departments in the general administration of public affairs.

The wide separation of the members of your Committee made it difficult to obtain the views of the eminent men who compose it and give such uniformity to them as would give general satisfaction; but the copy of the petition, which accompanies this report, was at length assented to by all.

This petition, to the extent of eight thousand copies, was printed in pamphlet form and issued within the covers of the *Journal of the Association*. A large number have been sent out at the request of State boards of health and others, and a sufficient number placed in the hands of members of Congress.

Copies have also been sent to all the medical schools of the Union. A large number of favorable responses have been received from physicians in the States, East, West, North, and South, from some of our eminent schools of learning, and from State boards of health everywhere.

The petition, with a bill formed to carry out its purposes, was presented in the first week of the session of Congress ; in the Senate by the Hon. John Sherman, and in the House of Representatives by the Hon. John A. Caldwell, both of whom have expressed warmly their belief that the measure is one of great public importance, and that they would do all they can to secure its adoption.

Copies of the petition and the bill to establish the Department of Public Health and a Cabinet Secretary thereof accompany this report.

At the suggestion of the members of Congress the Chairman went to Washington during the last days of January, and he was invited to meet the Committees of both Houses for a conference on the subject. The petition and bill had been referred to the Committee on Contagious and Infectious Diseases of the Senate and to the Judiciary Committee of the House. I had a full and courteous hearing in both committees, and I believe that in the House Committee a favorable impression was made ; but in the Senate Committee I found the Chairman quite unfavorable to it because—and he gave no other reason to me—the present Congress would do nothing that would increase departmental expenditures. I did not understand that, personally, he had any objections to the movement.

Before both of these committees your Chairman declared that the medical profession had nothing to ask of Congress for its own aggrandizement, but simply pleads for the welfare of the people, with whose social state it is more intimately acquainted than any other class of citizens—that our knowledge applies to everything connected with their employments, well-being, their habitations, and that while the fearful yet preventable diseases which rage in their families give us large revenues, the obligations of our beneficent profession lead us just as earnestly to attempt to destroy the causes of sickness as to save them from its destruction.

Your Chairman called their attention to the recital in the preamble of the National Constitution, namely, that its object is to form a more perfect union of the United States for the establishment of justice, to insure domestic tranquillity, to provide for the common defence of the people and promote the general welfare ; and he asked if Congress is not therefore under the highest obligations, while promoting domestic tranquillity and the common welfare, to provide every means required by the medical profession to prevent the spread and to destroy the elements of contagious diseases, that while the most lavish outlays are being made for the construction of the implements of war to defend our commerce and our coasts, why shall it not organize a comparatively inexpensive department in the Government that will be able to give aid by concerted action with the State boards of health for the detection and destruction of the germs of deadly diseases that infest the air, waters, and food, not only of our coasts, but in every city, town, and in the single homes of the agricultural classes. And he further said that what each member of Congress must feel for the increased intelligence and success of the physician, to whom he intrusted his own health and that of his family, is a type of the mind of the millions of individuals and families that constitute the republic.

Your Chairman dwelt at some length on the wide and practical learning of physicians which should commend them to the esteem and confidence of the honorable gentlemen of the legal profession, who make, judge, and execute the laws of the land. He pointed out that the methods of investigation of diseased conditions were upon the same logical plane as are the most difficult problems in law, statesmanship, or engineering science—that it is a profession of applied science, and the opinions of medical men have all the validity and certainty of those in any of the practical pursuits of life ; that our contributions to mental science have done more to unravel the occult questions in psychology than all the work of the schoolmen for the past generation ; that we have shown that metaphysics is no longer a jugglery with words, but the highest expression of reason whereby the consciousness is able to free itself from the evil influences of illusions, hallucinations, and delusions ; that the supreme condition of moral and intel-

lectual freedom exists only in a healthy condition of the brain, which proves that the supervision of the mind appertains wholly to the medical profession.

Upon the return of your Chairman to Cincinnati, he found published in a medical journal a bill which had been introduced and referred to the Committee on Contagious and Infectious Diseases. This bill, a copy of which accompanies this report, proposes to establish a National Board of Health, in the Treasury Department and under the supervision of the Secretary of the Treasury, which is to consist of seven members, as follows: three scientists, at \$5000 each salary; from the medical staff of the Army, Navy, Marine Hospital Service, one member each; and one from the legal department. So far as quarantine and quarantine regulations are concerned, it contains nothing but what may be found in the prescriptions of the bill which your Committee introduced into Congress; otherwise there are no provisions for the collection of statistics of natality, morbidity, mortality, or of the prevalence of epidemics or epidemics, or for collective investigations in regard to febrile, inflammatory, degenerative or malignant diseases; and diseases of special organs—*i.e.*, the heart, kidneys, and brain.

Your Chairman, after reading this bill, at once addressed the Chairman of the Senate an earnest yet courteous remonstrance against the passage of his bill, because it was not calculated to further the just claims of the medical profession to be represented in the executive government, that it was impossible for the Secretary of the Treasury to intelligently supervise the medical and sanitary interests of the seaports, and cities and towns, and agricultural regions of the nation; that we are, and always have been, deficient in a national organization that could combine the efforts of State boards of health to promote the health and comfort of the people at large; hence we have no standing in the international congresses on demography and hygiene that are so imposing and beneficial to public health and comfort in countries of advanced civilization—for example, in the World's Congress, held with such *éclat* in London last July, the United States had no official representation. The distinguished President of that Congress, Sir Joseph Fahrer, said that though they had accomplished so much good in preventive medicine in England, yet

they could have done more if they had had a Secretary of Public Health in the Government. They intend to get one.

Moreover, that there were no suggestions in his bill that would give any encouragement to higher medical education for which the medical profession asked no subvention from Congress—simply the creation of a great central office that incidentally would promote a concerted and loftier aim among the more than one hundred schools of medicine now operating among the States. Your Chairman laid before him the more recent statistics of success in the departments of surgery and midwifery, more especially, which show that in maternity hospitals in our country and in Europe women in successive hundreds and thousands of instances give birth to children in complete safety. I also pointed out that in expenditures his bill would be more costly than ours. After a long delay the distinguished Senator simply answered to the effect that Congress would not pass our bill, he felt very sure—indeed his Committee will not report it.

Since then, as late as March 24th, the Senator has introduced another bill in which he abandons his National Board of Health scheme, which was to contain seven members, and commits to the Marine Hospital Service, under the supervision of the Secretary of the Treasury, the administration of a coast quarantine and of that which relates to interstate commerce during a pestilence brought from foreign lands.

Your Committee entertains most favorable opinions in regard to the activity and intelligence which has been displayed by the Marine Hospital Service for the preservation of our seaports from epidemics of foreign origin, and also for its quarantine regulations to prevent their transmission from State to State along our lines of commerce ; but it does not seem reasonable that all the benign measures of preventive medicine should be administered by a single organization whose functions relate to so limited a field ; besides, all that has been or can be accomplished by that special service is provided for in the proposed bill to establish a department of public health.

The most untenable ground held by some who oppose our bill is that Congress has no power to establish a department of public health.

As before said, in the preamble of the Constitution, it is expressly stated that the Constitution is created to form a more perfect union of the States, to establish justice, insure domestic tranquillity, provide for a common defence, and promote the general welfare.

In promoting public health do we not promote the general welfare? What is the first law in political governments? The answer comes down to us through all the ages of civilization; the health of the people is the first law—" *salus populi suprema lex.*"

More than 100,000 people are dying a year by consumption, and 400,000 more of other preventable diseases. What is all the slaughter of armies compared to this?

There is another objection to our bill which comes from some conservative members of our profession: that the creation of such a department and a Cabinet Secretary will expose us to the operation of low and disqualified political schemers in our profession. Can we not trust the President to appoint a competent physician in the formation of his Cabinet? Why should we think it impossible to find a competent head of such a department any more than competent men are found for control of other departments? Such an object is without reason.

C. G. COMEGYS,
Chairman.

In conclusion we offer for your adoption the following resolutions:

Resolved, That the Committee be continued with such additional members as shall represent all the States in this appeal to Congress to establish a department and a Secretary of Public Health.

Resolved, That physicians in every congressional district throughout the States be requested to urge the adoption of this measure upon their Senators and Representatives in Congress.

The report was adopted.—*Journal of the Association, June 25th, 1892.*

THE REPUBLIC OF MEXICO—MEDICINE CURATIVE AND PREVENTIVE.*

By IRVING A. WATSON, A.M., M.D.

ADJOINING the United States upon the south is a great country, larger than England, Scotland, Ireland and France combined, wonderful in its material resources, charming in climate, picturesque beyond description, rich in traditions, grand in its prehistoric ruins ; a country attractive and interesting and which, with possibly the single exception of Japan, has no peer in universal progress in recent years. Of the republic of Mexico the average citizen of the United States knows less than he does of Ireland or Italy, and is less well informed of its ruined temples, its adobe pyramids, its unread hieroglyphics, its uncounted wealth before the *conquistadores* pillaged with blood-red hands the precincts of a happy people, than he is of Egypt, a country with which it compares in many respects.

We have not kept in view her progress in recent years, so the word Mexico brings to mind the story of human sacrifice, the Inquisition, the appalling deeds of the Spanish conquest, the thrilling narratives of executions for political offences, the crimes committed in the name of God, her horrible revolutions, the war with the United States, the short-lived empire of the unfortunate Maximilian, the vivid memory of his tragic death, and many other startling and thrilling experiences through which that beautiful country passed before she gave birth to a republic, based, as far as it is possible at this period of her enlightenment, upon the broadest principles of human liberty. I repeat that these shocking events in her history are the chronicles that have mostly impressed our minds, because our histories are teeming with their records, some of which are magnified and distorted out of all semblance of the truth. Therefore we have so long gazed upon her mountains

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of misfortune that we have overlooked the valleys of peace, happiness, and progress that have, in recent years, placed impassable barriers between the old and the new.

The republic of Mexico is over 2000 miles in length by nearly 800 in width near its northern extremity, while its minimum width at the Isthmus of Tehuantepec is 150 miles. Its area is not known, but it is estimated as great as 700,000 square miles. It has nearly 6000 miles of coast—1600 upon the Gulf of Mexico and 4200 upon the Pacific. The republic is divided into 27 States and two territories, and has a form of government similar to our own, with a constitution broader and more liberal even. To define more explicitly the status of the medical profession in Mexico it is necessary to allude still further to political, religious and educational affairs. The constitution, which was adopted February 5th, 1857, and which was materially amended and improved in 1873 (September 25th), guarantees the most liberal rights to all persons, and prohibits many obnoxious and retarding customs and laws that, prior to that time, were in active operation.

The constitution guarantees, among other things, that all persons born in the republic shall be free, and that any slave upon entering the country becomes free; freedom of the press, with the exception that private rights and the public peace shall not be violated; freedom of speech, education, and the exercise of the liberal professions; the rights of association for any lawful purpose; the privilege of petition; freedom to enter, travel in, and leave the country without passport; titles of nobility, whether hereditary or conferred, not recognized; retroactive laws prohibited; search without warrant and imprisonment for civil debts not allowed; the rights of accused persons guaranteed; capital punishment prohibited for political crimes, but applied for high treason, highway robbery, arson, parricide and premeditated murder. The privacy of personal correspondence is guaranteed; civil and religious corporations are prohibited from holding landed estates; monopolies are limited to the government coinage and postal service, and those (limited) allowed patentees of useful inventions.

All children born of Mexican parents, naturalized persons, foreigners who have acquired land in the republic (except in

cases where citizenship is avowed elsewhere), are legal citizens of the country. The amendments adopted in 1873 declare the separation of the Church and State, and guarantee religious freedom to all persons and denominations ; declare marriage a civil contract ; substitute affirmation for the oath, and prohibit all monastic orders without regard to denomination. These, in brief, are some of the more prominent features of the admirable constitution of the republic of Mexico. Under the power conferred upon Congress by this superb code of national principles, many laws of a most progressive character have been enacted, at the head of which stands the law of compulsory education.

Schools have been established throughout all Mexico, even to the Indian villages, and the attendance of all children is made compulsory. The police throughout the republic enforce the law, and any relative of a pupil who does not attend school according to the provisions of the law is liable to a fine. The teaching of religious doctrines is prohibited in the public schools—in fact, no religious instruction whatever is allowed. In schools of a strictly private character religious instruction may be given before nine o'clock in the morning only, the Government taking the broad ground that religion is an individual or family matter, and that the authorities have no right to use any influence in favor of a particular doctrine or creed. Under the reform, a large proportion of the property of the church—churches themselves, convents, monasteries, etc.—were confiscated for the public use, and many of the buildings are now used for school purposes, municipal palaces, cuartels for the soldiers, hospitals, etc.

Railroads have been rapidly built, as well as highways for military and other purposes, and in many other directions the material advancement of the country is equally well marked and substantial. All this has taken place under the splendid administration of President Diaz, who has already occupied the presidential chair twelve years. In considering the great material progress which Mexico has made in recent years, the character of the population should be taken into consideration. The people represent every gradation, from the full-blooded, prehistoric Indian to the most perfect type of the Latin-Caucasian. The population of the republic numbers

between 10,000,000 and 11,000,000, a great majority of whom belong to the Indian races. From the latter, however, have sprung some of the ablest men reared in any country, among whom may be mentioned the patriot priest Hidalgo; that great general and statesman, Juarez; and greater still, the present chief magistrate of the country, President Diaz. Many others might be mentioned in the same category.

These preliminary statements seem to me to be necessary, as they bear indirectly upon the progress of medicine in Mexico. Naturally the medical profession has not only kept pace with the national progress of Mexico, but it has always been found in the advance line, chiefly from the fact that its members constitute the most highly educated class of the country, and they have, as individuals, done much to make Mexico what she is to-day. In every community in that country the physician, as an educated and courteous gentleman, is second to none. The opinions of members of the medical and legal professions are everywhere deferred to. The reason for this will become apparent when it is known that the members of the professions in that country are compelled to go through a more extensive and systematic course of education before receiving their degrees than is required in the United States.

The requirements for the degree of M.D. at the School of Medicine in the city of Mexico are five years of study in the preparatory schools and five years at the medical school, and even then a degree is not granted unless the student passes all the required examinations, which are in themselves rigid and thorough. The law of the country prohibits any person who does not possess the degree of M.D. from practising in any place where there is a legally qualified practitioner. In other words, when a graduate of the School of Medicine locates in a given town, all persons in the practice of medicine in that place, not equally as well qualified, are obliged to cease the practice of medicine there. I understand that while this is the law, the medical authorities have thought it best not to allow any question concerning it to be carried up to the Supreme Court of Mexico, on the ground that it may be unconstitutional; therefore, in some States foreigners have been permitted to enter the practice of medicine without being

required to pass the examinations at the School of Medicine at Mexico, but none are admitted without a diploma from a medical college in good standing.

I met an American physician at Monterey who told me that he was admitted to practice after having obtained a certificate from the president of the college at which he received his degree, certified to by the governor of the State, then further certified to by some Mexican consul, and the whole proceedings put upon record with the State Government at Monterey. With these safeguards against quackery, the medical profession in Mexico has been able to raise itself to a high standard, and to suppress quackery almost entirely, although there are some exceptions.

It was my good fortune during four months of travel in that republic to meet a large number of physicians, and I must confess that they are the peers of any equal number of physicians I have ever met. The School of Medicine (*Escuela de la Medicina*) was established in 1770, at which date the degrees were granted by the Universities of Mexico and Guadalajara. A decree was issued in 1830 extinguishing the old school of medicine and creating the Medical Faculty of the Federal District of Mexico. Three years later the decree was amended so as to create the Institute of Medical Sciences, in reality the present School of Medicine. This school was assigned the old monastery of the Betlemitas. By an ordinance enacted in 1842 the institution received its permanent name, *Escuela de la Medicina*.

Subsequently the school was removed to the ex-monastery of San Hipolito. In 1854 the school purchased for \$50,000 the old and massive structure which was formerly occupied by the Inquisition. The building itself was completed in December, 1736, and with the changes which have been made in it serves admirably the purposes of a medical school. It was a fine amphitheatre, numerous lecture rooms, a good library, cabinets of natural history, botany, chemistry, etc. Indeed, it may be said to be thoroughly equipped in all its departments. Its bacteriological laboratory, under the direction of Professor Angel Gavino, is fully equal to any that I have seen in this country. The institution has a large number of students; the tuition is free, and there is no expense to the student except for text-books.

I had the pleasure of meeting at this school Dr. Manuel Carmona y Valle, who is at the head of the school, and who is well known to the profession in other countries by his writings, chief among which is a work upon protective inoculations against yellow-fever, written in French and published some six or eight years ago. Dr. Carmona is a fine-looking man, of marked ability, and speaks English, French, and Spanish. Did time permit I should like to mention some other physicians, of perhaps equal ability, connected with this school. Nearly all the professors graduated originally from this institution, completing their studies later in the French schools of medicine at Paris. It is very rare to find a member of the medical profession in Mexico who does not speak two or more languages, all speaking French in addition to their native tongue, and some English and German in addition.

The standing, character and influence of a profession are, to a certain extent, reflected in the laws of a country, and this is especially true in Mexico, as exemplified in at least two departments created and amply supported by the Government, to wit: The National Institute of Physicians (*Instituto Medico Nacional*) and the Superior Board of Health of the republic, the National Institute is designed for original medical investigations, and has a staff of 24 persons, including the Minister of Public Works, who is its official head. The staff is composed of physicians selected upon the recommendation of the National School of Medicine, after a competitive examination, and are duly appointed by the Government. Upon the staff are also one or two chemists. These men are all chosen with special reference to their fitness for the section to which they are assigned.

The institute is divided into five sections. The chief object at present is the examination of the flora of Mexico, with especial reference to medicinal properties. The plants are collected from all parts of the republic, and in each locality all the information possible is obtained concerning the specimens taken, as, for instance, their use by the inhabitants, the diseases in which they are considered applicable, etc. In Section I the plants are examined and carefully classified. It may be stated here that this work was commenced about two

years ago ; 5000 specimens have been collected, and 60 thoroughly examined. In Section 2 an elementary analysis of the properties of the plants is made. Section 3 is devoted to experimental physiology and bacteriology ; the experiments are, of course, made upon the lower animals. Section 4 is devoted to therapeutical observations. The remedies obtained from the plants are used whenever practicable. This work is carried on in the most painstaking manner, the entire plan of the institution being thoroughly systematized. After the preliminary examinations and observations of the action of the extracts, tinctures and alkaloids on the patients, those that are found to be valuable are then used in the hospitals and the results most carefully noted. Section 5 is devoted to climatology and demography.

The institution is supported entirely by the Government, and its researches are of inestimable value to the medical profession, as well as to the public.

The Superior Board of Health, although not strictly a medical organization, is so closely allied to it that it cannot with propriety be passed by in referring to the medical profession of the country. This board comprises seven physicians, with an ample number of skilled assistants, chemists, veterinary surgeons, and others. It was organized in 1870 with the establishment of the government of President Diaz. Ample appropriations have been made to carry on all its work. It commissioned two of its ablest members to travel through Europe and the United States to study sanitary questions and to collect all the data possible relative to public works. These investigations were carried on for several years, and resulted in the forming of a public health code, which two years ago was enacted by the Federal Congress into a law.

This health code is the most extensive, comprehensive, and the broadest ever adopted by any government in the world, probably. The law is printed in one volume of 120 pages ; it is divided into four chapters : Chapter 1, Maritime Sanitation ; Chapter 2, Sanitation in Frontier Towns ; Chapter 3, Sanitation in the States ; Chapter 4, Medical Statistics.

To show something of the scope of the work, I will mention the subjects treated in the first chapter : Dwelling-houses and schools, food and liquors, churches, theatres, and other

public meeting places, factories, industrial establishments, deposits, and other establishments which may become dangerous, unhealthy, or inconvenient to the country, sale of medicines and other substances of industrial use in drug-stores and other similar establishments, the exercise of the medical profession in all its different branches, burials, exhumations, and removal of bodies, infectious and contagious diseases, epizootia and sanitary precautions with respect to animals, dairies, slaughter-houses, and meat from the country, markets, garbage-dumps, public works effecting hygiene.

The work being done by this Board is of unlimited value to the republic of Mexico. Dr. Eduardo Liceaga, one of the ablest and most active physicians of the country, is at its head. The Veterinary Department of this Board is doing some important work in the investigation of animal diseases. It is a fine bacteriological laboratory in which a large amount of original work has been accomplished. Protective inoculations are being made and carefully studied. This department is under the supervision of Professor José L. Gomez.

It is to the credit of the medical profession, as well as to the Government and many individuals besides, that Mexico has a large number of hospitals; a few of them only can be mentioned, and those but briefly. The asylum for the poor is a very large and important institution founded by royal order in 1765, and it grew in favor so rapidly that a monthly grant of \$1000 was allowed it from the receipts of the government lottery. It is divided into wards and departments for old men, old women, boys, and girls. The institution is well managed and amply supported, and has, upon an average, about 800 patients.

The Army Hospital, under the supervision of Medical-General Alberto Escobar, is a large institution, first-class in all its appointments; the building is 103 metres long and 93 wide, with a capacity for 400 patients, and at the time of my visit was nearly full. The operating rooms were exceedingly good and were supplied with a splendid line of instruments. The hospital has a museum of pathological and surgical specimens which were prepared at the institution, and which constitutes an exceedingly fine and interesting collection.

The *Hospital de Jesus Nazareno* is the oldest institution of

the kind in the city, having been founded by the conqueror Cortes in 1594, and is one of the very few monuments which stand to the credit of the conqueror. He left an endowment to the hospital the income of which now amounts to more than \$50,000 a year. It is a most curious building, and, although it has been repaired from time to time, is substantially the same as it was three hundred years ago. The hospital was originally intended for Indians only, but since the races have become so mixed, this restriction has been removed ; it will accommodate 50 patients.

The *Hospital Conception Beistigui* is undoubtedly the best in the city ; it was opened in the year 1886, and was founded by the benevolent lady whose name it bears, and who gave it a fund ample to support it. The building was originally a convent, but has been thoroughly remodelled. It has wards for both sexes, is very spacious, and would accommodate, according to the customary allowance at most hospitals, 200 patients, yet it has but 80 beds. All non-contagious diseases and surgical cases are received without distinctions of religious beliefs or nationality, although the woman who founded this great charity was a devout Catholic. Its appointments are splendid ; large, airy wards with plenty of light and sunshine ; several *patios* in which there were growing banana-trees, as well as many varieties of shrubs and flowers, while the passion flower clustered along the railings of the balconies.

The floors are all of the finest glazed tile, and a most perfect aseptic condition existed everywhere throughout the entire institution. As would naturally be expected, all surgical cases do remarkably well in these wards. There are in the city of Mexico several other hospitals, both private and public. There is also an American Hospital which was opened in 1886 ; it is patronized by other foreigners, and is aided by the American, French, and Spanish benevolent societies. Nearly all the cities of Mexico have fairly good hospitals ; those recently constructed are upon the most modern sanitary and hygienic plans.

The city of Puebla has some hospitals worthy of mention. The *Hospital de San Pedro* is a very old institution, having been founded before the year 1659. It contains 150 beds, and at the time of my visit was full. It is divided into wards. I

saw in this hospital many interesting surgical cases, especially of gunshot wounds.

The *Casa de Maternidad* (Lying-in Hospital) is an institution of which any city might feel proud. It was founded and endowed by a philanthropic citizen—Luis Haro Tamarez. The building is very handsome, constructed of stone, brick, and iron, with marble floors. It has a large and beautiful *patio* with two fountains, trees, plants, and flowers. One would think the institution sufficiently large for a hundred or more patients, but it is designed for only 12 at a time. It has 24 rooms, 12 being occupied half the year, and the other 12 the remaining half. The hospital has a chapel, upon the altar of which is a beautiful life-size figure of the Madonna holding an infant in her arms.

At the city of San Luis Potosi there was being erected a fine hospital for the treatment of contagious and infectious diseases of children. It is to be entirely of stone, with ample wards and magnificent grounds. In the same city there was also in course of construction an elegant military hospital, founded by the Government. Two of the buildings were already completed and occupied by about 100 patients. The capacity of this institution will be 200. All the plans and arrangements are upon a large scale. The Government has many excellent hospitals, nearly every large city possessing one.

The State of San Luis Potosi has established a fine bacteriological laboratory. Its rooms are in the municipal palace of the city of San Luis Potosi, and a very accomplished physician and surgeon, Dr. Jesus Monjaras, is at its head. At the military hospital treatment for rabies *a la* Pasteur was inaugurated some two or three years ago. At the time of my visit to the institution, 100 persons had been inoculated, and not a death had resulted. In all instances where it is possible, proof inoculations are made upon lower animals, and in this way the diagnosis has been fully established in a large number of cases. The success of the treatment has been very marked, and the proofs of the disease positive.

In the city of Mexico there is an institution for the treatment of rabies, under the control of the Superior Board of Health. Up to December last, 512 persons, supposed to

have been bitten by rabid animals, had been inoculated, with but two fatal cases ; the fatal cases were not received early enough for treatment. In more than a hundred of the cases there was no doubt as to the nature of the disease, it having been proven by inoculations ; therefore the results are positive and satisfactory. In the opinion of the physicians connected with this work, there is no doubt whatever of the efficacy of the treatment.

Professional fees are as a rule somewhat higher in Mexico than in the United States, especially in surgical cases. In the city of Mexico the ordinary charge for a daily visit is \$5, which, in the case of the deserving poor, is reduced to \$2 ; ordinary amputations, from \$500 to \$2000 ; the operation for cataract, \$5000. These fees are, of course, applicable to the rich. The poor, however, are not neglected. The Mexican physician is always considerate of those in moderate circumstances and to the indigent ; besides, the latter class is amply provided for in the public hospitals. It was my good fortune to meet representatives of the medical profession in many towns and cities of the republic of Mexico, and under all circumstances I found them to be refined, cultured, intelligent, and polite ; indeed, the latter quality is a national characteristic, and one which can be thoroughly appreciated only by an American visiting the country.

It is unfortunate for the profession in both our own country and Mexico that the barrier of language prevents an intimate association among its members, which but for that would certainly exist ; but this obstacle is being overcome to quite an extent. The uniting of Mexico with the American Public Health Association was a great step in this direction, and the Pan-American Medical Congress, which meets at Washington in September, 1893, will also accomplish much in the same direction.

There is much more to be said of the hospitals and charitable institutions which are directly or indirectly connected with the practice of medicine in Mexico, but I think enough has been given to show you that both the profession and its allied institutions and charities in that country are upon a much higher plane than has generally been supposed by our people, and possibly by the members of our own profession.

DRINKING-WATER A SOURCE OF MALARIA.

GRADUATION THESIS, MEDICAL DEPARTMENT, TULANE UNIVERSITY OF LOUISIANA, 1892.

By RICHARD WAGGENER, M.D., Pensacola, Fla.

DR. CHAILLÉ, Professor of Hygiene, Medical Department, Tulane University of Louisiana, stated in one of his lectures that although sanitarians generally admitted that malarial fever might be caused by drinking water contaminated with the poison, yet any evidence bearing on the subject ought to be published.

I have been struck so forcibly, time and again, during the past five years, with instances where the water supply was obviously the source of malaria, that I have concluded to write my thesis upon this subject. Not being on the ground, I will have to dispense with many valuable data and much information I could otherwise obtain, and will therefore confine myself to relating the three most important facts coming under my observation.

The writer has resided, during the past five years, on the Naval Reservation, near Pensacola, Fla., serving as Apothecary U. S. N., at the Pensacola Naval Hospital, and assisting Surgeon John W. Ross, U. S. N., in a very large practice. The Naval and Army Reservations are situated on the north side of Pensacola Bay, about seven miles southwest of the city of Pensacola, and about one and one half miles from the Gulf. The Navy Yard, the villages of Warrington and Woolsey (combined population about 1200), lying just without its walls, and the Naval Hospital, three quarters of a mile west, are situated on the Naval Reservation, and Fort Barrancas, Army Barracks, etc., are situated on the Army Reservation, one mile west of the Navy Yard.

The villages of Warrington and Woolsey are at the present day extremely unhealthful places, being strongly malarious throughout the whole year, and especially so during the sum-

mer and autumn. This condition of affairs has existed during the whole period of my residence there, and certainly for some years previous, but the older inhabitants, many of whom have lived in the place since years before the war, all unite in declaring that previous to about the year 1872 the place was considered very healthful, that chills and fever were unknown, and that people from the interior would locate there for a time to recuperate from malarial troubles.

Having satisfied myself that the above was true, it was but natural for me to wonder why such a change had occurred in the healthfulness of the place, and to try to ascertain the cause. After carefully investigating the matter, I have concluded that the water supply of the villages in question is the source of the greater part of the malarial poison with which the inhabitants are afflicted, because the only change of a sanitary nature which has occurred to them since the time of their comparative healthfulness to the present day consists in their water supply, and in this they have made a very decided change, as I shall proceed briefly to relate.

The point of land upon which the villages of Warrington and Woolsey are situated is a low, sandy beach, about six feet above sea-level, the soil consisting of a layer of sand, mixed with organic material, overlying a swampy and marly subsoil. Water is found in the driest season at an average depth of three and one half feet. Back of the villages there is a further rise of about forty feet, consisting of sand and clay. The villages are the offspring of the Navy Yard, upon the location of which potable water was sought and evidently found, consisting of two springs at the foot of the rise alluded to above, which boiled up out of the pure white sand, clear and cool even during the hottest part of the summer. The authorities in the yard, having at that time no reservoirs for collecting rain-water, caused these two springs to be curbed in with brick for their own supply. These springs are still in existence, and are known as the "Commodore's Springs." This source supplied most of the drinking water to families residing in the villages, a small portion of them possessing cisterns, but preferring this water in summer on account of its coolness, until about the year 1872. About that time *driven wells* were introduced, and these being cheap, quickly put in operation

and convenient, it was not long before almost every household had one or more of them in the back yard. The wells are driven, as a rule, only about twelve feet deep, some of them half that depth, and constitute the present water supply of the villages.

Another fact : In January, 1886, a marine guard, numbering about forty men, arrived at the Pensacola Navy Yard for duty at that station. These men came directly from the north, and were in fine physical condition. During their first year on the station they began to have frank attacks of remittent and intermittent-fever ; during their second year there was a much larger proportion of them on the sick list, and between July 1st and August 15th of their third year (1888) every man in the guard had an attack of either intermittent or remittent-fever, twenty-five of the forty being in the hospital at one time. They were sent north to Norfolk, Va., on August 15th, many of them far from well, but their improvement was steady after leaving. On account of this circumstance, the department has not seen fit to send another marine guard to Pensacola. Surgeon John W. Ross, U. S. N., in his annual report to the Surgeon-General for the year 1888, says : " The health of the marine guard grew worse almost steadily during their stay here [Pensacola] until in the early part of August, 1888, before the sickly season had reached its height, they broke down completely, and had to be carried away bag and baggage."

The marines during their stay at Pensacola, with the exception of a few months, occupied new cottage barracks built on the pavilion style, well ventilated, cool in the summer, and having their floors three and a half feet above the ground, open and well aired underneath.

The water supply of the Navy Yard consists in a brick cistern for each of the officer's quarters, and three large cisterns, with a combined capacity of 500,000 gallons, affording the general supply. The marines were supposed to get their drinking water from one of the large cisterns, the nearest of which is about 200 yards from the barracks, but unfortunately for them there was a driven well very near their barracks, from which, for obvious reasons, they derived the greater part of their drinking water.

On the other hand, the officers and their families residing in the yard used cistern water only, and they were entirely exempt from malarial diseases during the season of so much sickness among the marines, as they also had been before and have been since, sickness of any kind among them being little or none. At Fort Barrancas, only a mile from the Navy Yard, the enlisted men, more than double the number of the marine guard, used cistern water exclusively, and their health during the period of so much sickness among the marines was, as Post Surgeon M. C. Wyeth, U. S. A., at the time expressed it, "excellent."

The third fact is as follows: The present Naval Hospital buildings were constructed in 1875, on the foundations of the old hospital destroyed by fire during the Civil War. The water supply consisted until the early spring, 1890, of two driven wells eighteen feet deep. During the whole time this water was used the place was very unhealthful, the attendants having attacks of malarial-fever every year, and patients admitted with other diseases would often develop malarial manifestations while at the hospital.

During my first year at the hospital I apparently escaped the poison, but during the two succeeding years, 1888 and 1889, I had several attacks of malarial fever, my wife suffered from it even more than I, and our little girl, during her first and second summers, had typical paroxysms of intermittent-fever. In the spring of 1890 an old brick cistern, a relic of the old hospital, was repaired and put in use, since which time we have used cistern water only at the hospital for drinking purposes, and although two very sickly seasons have passed, there has not been the slightest evidence of malarial trouble of any kind in my family.

In conclusion, I will mention that the atmosphere of the locality of which I have written is probably, to a great extent, deprived of malarial poison by a strong south or southwest breeze, which prevails during the entire summer; coming immediately from the Gulf, it is perfectly free from malaria when it arrives, but when it departs carries with it, no doubt, the morbid agent almost as fast as it springs from its mother earth.—*New Orleans Medical and Surgical Journal.*

BROOKLYN'S DISGRACEFUL NUISANCES.

“IT'S A CESSPOOL.”—WHAT A MEDICAL EXPERT CALLS
GOWANUS CANAL.

(From the *Brooklyn Eagle*, June 23, 1892.)

THE Brooklyn Sanitary League, composed of residents and property owners actively opposed to the Gowanus Canal and adjacent and contributory nuisances, held the last meeting of the summer in Grand Union Hall, 258 Court Street, last night. There was a fair attendance, among the number being several women. Hiram R. Steele presided, and F. K. Winslow recorded. In opening the meeting, President Steele said he had received several letters from residents of the district who were unable to be present, but who were in full accord with the object of the league. The Health Department, and, in fact, every department and official in the city, from Mayor Boody down, he said, was opposed to the nuisances that have tended to depreciate the value of property in South Brooklyn and make it an undesirable place to live in. It only required a determined effort on the part of the league to arouse the indignation of the masses and success would ultimately be achieved.

Prominent speakers were present to address the meeting. Dr. Thomas P. Corbally, associate editor of *THE SANITARIAN* and a resident of South Brooklyn, spoke at some length upon the effect of the nuisances on the public health. He said :

“Brooklyn is a beautiful and picturesque city, disfigured by foul ulcers that fester on its surface. Some of these have been removed, but most of them have been covered up and hidden from view. Others are allowed to exhibit all their repulsive and disgusting features for the execration of all who come in contact with them. These will leave an indelible imprint because they hinder the natural development. Civic cleanliness has ever been the mark of advanced civilization.

The first sewers, called by the Romans cloaca, were built by Tarquinius Priscus 616 years before the Christian era, or more than 2508 years ago. To him the Romans were indebted for that great sewer known then as now the cloaca maxima, which carried much of the filth into the Tiber and thence out to the sea. Wherever the Romans established their authority they took special pains to preserve the cleanliness of their cities and towns as a means of protecting the health of the people. Among the most extensive and the best preserved of the aqueducts for the supply of pure water is that at Segoria in Spain. Contrast with this the city of Pekin. Morach, who spent seven years in China as physician to the French Legation at Pekin, and was subsequently professor of hygiene in the great military school of Val de Grace, tells us that the commodes are in the middle of the streets unprotected from the heat of the sun and in the sight of all who throng the streets. There they ferment and fester just as the sewage, festering and agitated by boats, ferments and gives off its pestilent vapors from Gowanus Canal, to carry disease to thousands of people who live within its reach. The Chinese do not navigate these public cesspools, and the ditch complained of is not so much a canal as a cesspool, containing the filth and sewage of more than a quarter of a century. There are various points from which the subject may be considered. The expert in real estate could give an estimate of the present value to the owners of docks and property in the vicinity. He could also give an idea of the probable value of property to be assessed by the city if this incubus on improvements were removed, and, also, of the expense of removal. The legal expert could investigate the difficulties to be encountered in the courts if efficient measures for improvement were necessary and practicable. The civil engineer can determine the mechanical and other difficulties to be met with in effecting needed changes. The sanitary expert can determine approximately to what extent the moral, the social, the ethical, and the economical condition of the people interested can be improved. In this connection a committee could report on the means employed to procure the closing of Bushwick Creek and the time required to secure that object. These committees, having fully considered the questions submitted

to each, could meet, compare results, and determine the best method to be pursued. Experiments have enabled us to estimate the probable amount of putrescible matter emptied daily into this open sewer. How much of that escapes? How much remains? What changes does it undergo? The report of the Board of Health for 1875-76, speaking of the Gowanus Canal, says: 'It receives the contents of the sewers which drain a large and thickly populated district, embracing nearly the whole of the Third and Tenth wards and a large portion of the Twelfth, Sixth, and Twenty-second. Four sewers then emptied into it, namely: One at the foot of President Street, one at the foot of Sackett Street, another through Center Street, and a fourth at the foot of Bond Street. The human waste from the thousands of houses upon the line of these sewers and their many thousand inhabitants, with the washings from the streets and the refuse from the factories along its line, find their way into this canal, where the offensive accumulation lies festering in the sun and emitting its noxious gases to poison the surrounding air for days and weeks before finding its way to the mouth of the canal to be swept away by the current of the river.' No inlet, no current, and the, waters with all their poisonous ingredients and feculent admixtures, rise and fall with the tide, moving downward only fast enough to make room for the sewage that flows in behind. It has thus become a huge open sewer, and the odors proceeding from its black and slimy contents are the source of complaints from citizens residing for blocks on either side of its course. President Street sewer is 18 inches in diameter, and had within its drainage 287 dwellings, with a population of 2500. The Sackett Street sewer drains fewer houses, and is less dangerous. The Centre Street sewer discharged daily half a ton of solid matter. The Bond Street sewer, 6 feet in diameter, of brick, is never completely uncovered at its mouth, except at very low tide, and at high water it is occasionally filled as far as Degraw Street, nine blocks from its mouth at Fourth Street. This sewer drained almost all the Third and Fourth wards and portions of the Twenty-second. In this district there were, in 1876, 4700 dwellings, with a population of about 41,000. It discharged daily four tons of solid matter. Then, calculating on the above basis, the

annual discharge of solid matter was 1676 tons. The greater part of this material is poured into the canal at a point where there is no current of sufficient velocity to carry it away. One has only to stand over the outlet of one of these sewers and see the material which is discharged, and the bubbles of gas which, coming from decomposing substances at the bottom, burst in millions on the surface, to be satisfied that the nuisance existing here is one which must have a most important place among the causes of disease. In order to form a proper estimate of the amount of filth deposited in this cesspool, sixteen years ago, in 1876, the amount of solid excrement daily was 9187 pounds, making 1676 tons in one year [Raymond]. If the time from the commencement of this nuisance, more than a quarter of a century ago, at the rate of deposit sixteen years ago were considered, it would now amount to nearly fifty thousand tons. During the same time the liquid would have amounted to nearly two million hogsheds, and the other waste from sinks, kitchens, and the like, to twelve or fifteen million hogsheds. What has become of this? Occasional attempts at dredging have been made. In 1875, from report of Board of City Works, Gowanus Canal was dredged 500 feet easterly and 550 feet westerly from Bond Street, \$2500 cost, and also at Third Street bridge, cost \$250. For this work \$2750 were paid by the city, the people who suffer from the nuisance contributing their full share, and for whose benefit? Was it for the benefit of those who maintain the nuisance and get rich at the people's expense? A question for the lawyers. Had the city a legal right to pay that money? If so, what is the law in the case? Yesterday I was informed by Health Commissioner Griffin that the filth at the bottom of this canal would vary probably from nine inches to three feet in depth. How often this foul, seething mass is disturbed during the day will depend on the number of vessels that pass up and down, and their depth in the water, as well as the agitation from tugboats. Sickness is a taxable object, because the laws punish any injury done to our bodies. Let us suppose every case of sickness was caused by the city. Can you estimate the cost every year and the taxes necessary to meet the demands? How many days' sickness would there be during the year? It has been estimated that every

one is sick nineteen to twenty days in the year—that is, 15 per cent of his time. Could we lessen this burden in the community as we do taxes, assessments, levies, etc., we would remove a great deal of suffering. This is one of the most interesting problems of medical science, and some of its most eminent practitioners are engaged in sanitary and hygienic studies. Brooklyn has a population, according to the State census, of 955,333 souls. If every one is sick twenty days a year we have 19,156,660 days' sickness in this city. This may excite unfeigned astonishment, but let us consider: In the Prussian army every soldier is sick 16.38 days in the year; then in civil life twenty days is not an overestimate. After sixty years of age the number is forty days. Brooklyn then spends about \$20,000,000 a year for sickness. How many people live within the influence of this pestiferous cesspool? Are there 60,000? In 1875 the death-rate in the Tenth Ward was 28 in 1000, and in the city 24.36; that made 218 deaths above the average, and made 7412 cases of sickness above the average, and 148,240 days of unnecessary suffering, anxiety, and forced idleness, or \$148,240 loss to that portion of the community."

When Dr. Corbally had concluded, the president introduced Charles F. Wingate, a well-known sanitary engineer, who has been engaged by the league to make an inspection of the Gowanus Canal and some of the manufactories in that neighborhood. Mr. Wingate spoke briefly. He said he had made an inspection of the canal at low tide, and that it was a regular cesspool. The original intention, he said, was to have the canal run right through the city, thus having an opening on either side, but the work was stopped when only half completed. In its present condition it was a menace to the health of the people. The only way to abate the nuisance was to prevent the emptying of all public and private sewers into the canal, and to have floodgates to flush it. Mr. Wingate concluded by urging the league to continue the agitation, and assured the members that success would attend their efforts.

Dr. G. E. Plympton, chemist to the league, told of a visit he made along the canal recently. The stench, he said, was unbearable. It was not surprising that scarlet-fever, typhoid-

fever, and other diseases were prevalent in the neighborhood of the canal. From a reliable source he learned that the death-rate in the immediate vicinity was 65 in every 1000, while on the heights and the hill it was only 13. Dr. Plympton said that Health Commissioner Griffin was in full sympathy with the work undertaken by the league, and would render it any service in his power.

On motion of ex-Judge Birdseye a vote of thanks was tendered to the speakers.

Remarks were made by Andrew J. Perry, John F. Henry, Andrew Walsh, and others. A motion was made that a committee of three be appointed to call on the State Board of Health, which is at present in New York, and lay the facts of the nuisances before that body. The matter was left to the executive committee, and the meeting then adjourned subject to the call of the chair.

STONE THE BANKS.—Newtown Creek is a twin nuisance with Gowanus Canal, described by Dr. Corbally. We have many times taken occasion to animadvert on its abominable stench, disgusting to the inhabitants round about, and nauseous to thousands of travellers who seek the sea-shore by way of the Long Island Railroad. Yet, like that of Gowanus Canal, it is sustained by the Brooklyn and Long Island City authorities, notwithstanding it has been condemned at least half a dozen times by the State Board of Health, for the most part on partial issues, however, constantly shirking and shifting the responsibility, instead of taking effective action for its abatement.

Both these creeks are well known to be exceedingly sluggish—*dead ends* to the rise and fall of the tides—and consequently cumulative of filth. Notwithstanding, when sewerage was first introduced into Brooklyn, and for a dozen years subsequently, they were used as sewage outfalls. And before that time the shores of Newtown Creek were the specially chosen sites of offensive trades—for many years the putrefactive depot of stable manure; the site of various rendering establishments, bone boiling, fat rendering, etc., saturating the soil with filthy deposits and evolving foul gases, and discharging sludge acid and other offensive refuse into the

creek. The immediately visible portion of these sources of foul odors has been assailed from time to time ; a few of the sources have been abated—several required to use vapor-destroying machinery—but most of them have merely varied their process or shifted their position, and a considerable portion of the last named to Gowanus Canal, without materially detracting from the stench of the one or adding to that of the other. Because and in excess of the offensive gases evolved from the factories, sulphuretted and carburetted hydrogen, and other gases of decay—more dangerous than and equally offensive with any of the factory gases—are evolved from a source which neither the State nor the City Board of Health, nor the special commission not long ago appointed to investigate these nuisances seems to have recognized.

Both Newtown Creek and Gowanus Canal are banked with logs, and have been so for many years. Moreover, lumber yards, wood yards, and saw mills abound on their shores. The waste of these logs, yards, and mills comprises a mass of putrefying vegetable matter such as is everywhere recognized as a prime source of malarial diseases and a fruitful field for epidemics.

Considering the commercial value of these trade sites and their importance to the city, since they cannot be dispensed with, is it too much to require of their owners that they be so improved as not to be dangerous to the health of the people? Surely not. The three words with which this notice begins suggest the means. Let the banks of Newtown Creek and Gowanus Canal be stoned. The cost should be assessed on the property, and with occasional dredging, at public expense, the dangerous nuisances would be abated, and the commercial value of these water-ways would be multiplied more than four-fold.

A. N. BELL.

PRISON REFORM.*

By TANCRED CANONICO, Senator of Italy.

IT is a matter of no small importance when so many persons from various countries, many of whom are eminent, are met for so important a purpose as the security of the public and the moral reform of criminals. But a special emotion moves our hearts when we see ourselves welcomed with such a splendid and cordial hospitality ; when we see the marked interest in our work shown by His Majesty the Emperor, who has named as the honorary president of the congress a prince so intimately allied with the imperial family, whom I see with gratitude listening to my poor words, honoring the opening of our sessions by his presence and that of his august and gracious wife ; in seeing ourselves surrounded by so many distinguished ladies, having at their head an imperial princess who has always devoted herself to improving the condition of prisoners, faithful to the noble and holy mission of woman, aiding by thought and action all efforts for the relief of the moral and physical miseries of humanity. By the union of so many brilliant attractions there is about us an atmosphere of heat and light which warms the heart and brightens the intellect. The most noble faculties are elevated by this inspiration. While I speak I shall feel this, but at the same time I shall experience a difficulty above all in presenting all I would say clearly in a language which is not my own. Consider then, I pray you, not the speaker, but the truth that is spoken. Reflected by the ocean or by a drop of water the sun is always the sun.

I. THE ORIGIN AND DEVELOPMENT OF PRISON REFORM.—From the remotest ages criminals have been punished ; but in different epochs how differently has punishment been regarded ! It is this slow and continual transformation in ideas re-

* Address at the Fourth International Prison Congress, St. Petersburg, Russia, 1890. C. D. Randall's Report, Circular of Bureau of Education, No. 2. 1891.

garding it which, little by little, changes penal laws and suppresses old systems. Let us follow with a synthetical and rapid glance the gradual change of ideas, and we will have the key to the present prison system. Punishment, regarded from a broad point of view, is not alone endured in prison. We can truly say in this respect that the entire world is a great penal establishment. What is man here below and what does he not suffer? And all suffering, which is only punishment—mark it well—is the consequence of errors or faults committed by ourselves or by generations that have preceded us. The history of each people and of each individual is identical.

Each man suffers his own secret punishment, be it great or small; but it happens only too often that serious misdemeanors are committed that injure others and imperil the safety of society. Then the social power in subjecting the guilty to a treatment more or less severe, only makes itself the organ, so far as necessary for the public safety, of this general inherent law in the constitution of human nature which, for each deviation from the right way, provides a punishment as a sanction of the true way and as a call for reform. And the treatment of criminals varies not only according to the gravity of the crimes and the guilt of each; not only according to the difference of circumstances, but also according to the idea with which each epoch and each government establishes its penalties and executes them. Every modification in the general idea exerts its influence on the conception of the punishment which should be inflicted on criminals, and consequently on the mode of application.

In the earliest times all suffering and pain was supposed by men who attributed to divinity their vices and passions to proceed from the vengeance of the gods, as a fixed destiny from which men could not escape. In this way even Aristotle regards it as an inevitable necessity that some men should be free and some should be slaves. A heavy and sad atmosphere weighed as lead upon poor humanity. According to the ancient Greeks, Fate was superior to the gods. There was no place for the free judgment of man. Fatalism was the essential character of paganism. It is so in our day with the belief of the Mussulman and the people of Asia in general.

This common conception of the penalty to be applied to the punishment of the guilty is converted in time into a sentiment of revenge by society, with the most complete indifference as to the condition of the criminals. The sentiment of justice and the influence of religion modified in some respect this cruel indifference. But it was always a justice purely exterior and coarse, taking account only of the apparent and sensible manifestations of criminal action. Hence came the law of retaliation, so general in ancient times, "An eye for an eye and a tooth for a tooth."

But suddenly, in the midst of the sombre skies, a comforting ray shone on this unfortunate earth. This celestial ray awakened in the soul the faith that by suffering we can expiate crime ; that by suffering man can redeem himself, because suffering enables him to look within his heart, to detect his errors, to detest them, and to repair them, and in that way to remove the evils which have been caused by them. Through this belief a new impulse was given to the mental activity of man. In the midst of his time-worn grief, the poor exile on the earth feels reviving hope. From the depth of his soul he lifts a sigh to this beneficent ray ; his heavy eyes look up and are wet with tears. He begins to regain conscience with his moral freedom, as he feels himself delivered from the bondage of sin and passion. The true progress of the people begins thus with the moral advancement of the individual. From that time punishment begins to develop into repentance. This fruitful transformation elaborated itself during long ages, and continues to-day in the heart of humanity. It has produced, little by little, corresponding changes in many manifestations of social life. There were those upon whom this principle took strong hold for the exclusive object of the moral perfection of themselves and their fellow-men. From this class sprang the anchorites and monks, who were only voluntary prisoners ; from these the fastings, the mortifications, and the religious penances.

In private life how many griefs are solaced, how many hearts are made glad and revived by this belief ! By it, even in the masses of society, manners are insensibly softened. We see their hereditary enmities end by a solemn peace. Vengeance is tempered by justice, and justice allies itself to clemency.

Sovereign pardon corrects the errors of human justice. The ties between master and slave become less hard, and little by little slavery falls, as the progress of the inferior class advances, and as the conditions of each country permit. The inequality which exists between men is in the nature of things and will always exist. But this inequality will be no more guarded by an impassable barrier. Each raises or lowers himself in social order according to his skill, his work, and his merit. The abolition of serfdom in this great empire, accomplished in the midst of so many obstacles, is not the least glory of the reign of His Majesty, Emperor Alexander II. The difficulties which accompanied and followed this step are inseparable from all great reforms. But they disappear under the action of time, of prudence, and sacrifices, which are necessary in the accomplishment of all real good.

In the mean time, it has required centuries to develop the idea of the application of reformation in prison management. When that time arrived the places of punishment began to be called penitentiaries, and the system was called a penitentiary system, the combining of different methods by which an attempt was made to apply the idea of expiation to punishment.

It is not necessary to follow, even in a summary manner, the historical development of the penitentiary system, nor to present a view of the different methods at present existing in the different States; for, on the one hand, such a review would surpass the limit of this meeting, and, on the other, as I address those who know more than myself, I do not desire to abuse their kind attention by useless details. It will suffice to recall by reference the most salient points of the development of these methods, which will be strictly necessary in order to draw some practical conclusions.

The saddest and most glaring fault of ancient prisons being the massing of prisoners in common, the first thing considered was their separation.

In 1677 the Abbé Francis established at Florence a correctional prison on the cellular system. William Penn had already proposed prison labor, with enforced silence, but the principle had not been applied.

The first serious attempt at prison reform is due to Pope

Clement XI. In 1703 he constructed in Rome the prison of St. Michael, which is a vast parallelogram, with cells on the two long sides. By separation, education, and moral and religious instruction, they sought to bring back the prisoners to the right road. The words cut in marble, which can be read to-day, "It is a small thing to restrain the wicked by punishment if we do not reform them by a good discipline," contain the essence of all penitentiary reform; so that the construction of this edifice presents the first type of all buildings which, with successive improvements, have since been erected for this purpose.

Maria Theresa, Empress of Austria, followed this example in the prisons which she built in Milan and in Ghent in the second half of the eighteenth century. But these reforms soon found enthusiastic followers in England and America, where the writings of Howard (of whom Mr. Spassowitch presented to us yesterday so living a picture) on the unfortunate condition of prisons and prisoners deeply moved the minds of philanthropists. By the law of 1785 the construction of a cellular prison in Gloucester was ordered, but it was, above all, in America that, under the name of penitentiary system, the reform of prisons assumed a great development.

You are aware that the Society for the Relief of the Unfortunate in Public Prisons (a prisoners' aid society), founded in Philadelphia by the Quakers, began by obtaining some mitigation in corporal punishments and the substitution of imprisonment for execution in some cases, the improvement of Walnut Street Prison, and by classifying the prisoners according to the crime committed, and in confining the greatest criminals in separate cells. The example has been followed by many American States. It is scarcely necessary to recall the fact that from 1821 to 1829 there was built in Philadelphia the famous Cherry Hill Prison, with nearly 600 cells constructed so as to render communication between prisoners nearly impossible. The isolation is continual. It is modified only by the visits of persons who can aid the guilty in their moral reformation. In Auburn there is established, as you know, isolation during the night, and work in common during the day with compulsory silence.

The several States of the Union have generally adopted

one or the other of these systems. In Virginia the Philadelphia system has been adopted for the beginning of the punishment, and the Auburn for the succeeding period.

There was an attempt to introduce the two methods in Millbank Prison, in England, which was constructed in 1812. Subsequently cellular isolation prevailed there, with some alleviation ; a system which was also adopted in Peltonville, inaugurated in 1864. The two systems were likewise attempted in France ; the cellular in the prison of Roquette, and the Auburn in the central prisons of Montpelier, Fontevault, and elsewhere I cannot recall the prisons of France without rendering homage by an affectionate and grateful word to the illustrious Charles Lucas, whose recent loss we deplore. From his youth he powerfully contributed to prison reform, and to the last days of his advanced life he fought for humanitarian reform with all the vigor of a young man. Like a brave soldier, he died in the breach. I was honored by his friendship. It is a very sweet duty for me to present here this flower of affection and memory.

Belgium, the different States of Germany, Holland, Sweden, Norway, Switzerland, Russia, Italy, Spain, and Greece have followed with ardor this reform movement in its different manifestations. We have all admired, during these days, the prisons of St. Petersburg. The new penitentiary near the Alexander Bridge, over the Neva, known as the Viborg, or new prison, is without doubt one of the finest prisons in Europe. The progress made here is striking ; above all, since ten years ago, when this branch of the administration was united under one direction, the exclusive jurisdiction of the Minister of the Interior. It is an honor to the imperial Government, and to the illustrious and eminent officer (Mr. Wras-koy) who has the general direction of the prisons of the empire.

How remarkable that the development of the idea of repentance in the organization of punishment resulted in two prison systems corresponding to the two principal religious orders in which the growth of this same idea produced the system of voluntary repentance, so that Leon Faucher has said with reason that if the world were divided between two prison systems, as it was formerly divided between two great

religious orders, it could be said that the Philadelphia system is that of the East and the Auburn that of the West. In the equal development of the same principle applied to two different orders of institutions there is an inward law of human nature that it might be interesting to investigate. But the mind of man is so constituted when it has taken a new direction it does not stop so easily. It was soon perceived that neither of the two systems had an absolute value, and neither was exempt from inconveniences. We have seen that in Virginia they had already attempted to unite the two systems by limiting the first part of the punishment to cellular separation. The necessities of colonization in Australia have suggested to the English the idea of the conditional discharge of the prisoner toward the close of his confinement, a discharge always revocable in case of bad conduct. This practice has since been introduced in the system of ordinary punishment. It is thus that the English have begun to distinguish three degrees in temporary punishment—cellular separation, work in common, and conditional discharge.

But Mr. Crofton, whose name is an eulogy, in his work as a member of a commission of inquiry upon the state of prisons in 1853, was impressed by the disorder he found in most places, and he felt profoundly the necessity of an intermediate period of transition between that of work in common and of conditional discharge. The English Government consented to make an experiment in Ireland, and after the good results which followed, it regulated later by an act of Parliament the system which is called the Irish.

I do not need to address you on this system in detail, which you understand better than I do. It will suffice to recall that after a period of isolation, where by exclusive contact with reformatory influences they attempt to arouse the conscience of the criminal and to lead him to a firm resolution to live honestly, the prisoner passes to a second period of life and labor in common, where the convicts are separated into different classes, according to their conduct.

Then come the intermediate establishments, where the convict puts off the prison uniform; where according to his ability he is given agricultural or industrial work, where he begins to have contact with persons outside in order to be-

come acquainted and more readily find work, when his sentence has expired. A special school is organized to prepare the prisoner to use his liberty well, to show him how to employ himself, and to overcome the difficulties which will meet him on his return to liberty. Finally in the last period of his term comes conditional discharge.

The essential principle of this system is that the convict, having passed in each degree a minimum of time, it depends on his good conduct to raise him to a higher degree ; and, on the contrary, he can by bad conduct retrograde from each degree to a lower. Every one knows the excellent work of Mr. Vander Bruggen on this system. It is impossible to begin reading this work without completing it, such is the interest that the system itself awakens in the reader and such is the love with which the author treats it.

This system has a double object, to individualize as much as possible the application of the punishment adapted to each convict, and to prepare every one, little by little, for a free, industrious, and honest life.

The fundamental idea of this system responds at the same time to human nature (*non procedit per saltus*) and to the purpose of punishment, which is the safeguard of public security, returning to free life men capable of work, disposed to labor, and of good conduct. It is not surprising then that under different forms this idea has considerably extended and has modified in this way the prisons of different countries. With the exception of perhaps Belgium, where the cellular system during all the imprisonment gives good results, I believe there is not a State in Europe where isolation is exclusively adopted. At the side of prisons of continued isolation, which are becoming more rare, we see rising everywhere prisons with a graduated system. In Italy, after some happy efforts with labor in the open air for the least dangerous among the convicts, all have adopted in the new penal codes the graduated system for long punishments. We have also introduced it in the military penal code, which is at present being studied as much as the nature of military institutions on land and sea will admit.

In extending this principle further, in some States they began to establish conditional punishments for offences of less

gravity ; that is to say, the condemned undergoes the punishment only after a second conviction.

With regard to judicial prisons, as they are for a detention which should be brief, applied to the accused whose guilt or innocence is not determined, and during which time it is for the interest of public justice, of public safety, and human dignity that there be no communication between those who are real criminals and those who may not be, every one agrees that the only just and rational system is that of continued cellular separation, although the need of sufficient establishments and financial difficulties prevent in more than one State the entire and complete application of the system.

It is hardly necessary to add that when once the idea of reformation enters the penal institution then comes the desire either to prevent crime in cutting off its sources or to hinder as far as possible the relapse of the criminal on the expiration of the sentence. Hence come the reform schools for the young and societies of patronage. Concerning these complementary institutions of prison reform, the first of which in our days has had a great development, I cannot speak now, for they furnish sufficient material for several conferences.

After this summary review of the origin and development of penitentiary reform, I request you to follow me for a short time so that we can together grasp the essential unity of the subject. We can the more easily appreciate the good results which have been obtained, distinguish what is to be avoided and what is yet to be accomplished, so that if we cannot fully attain the object sought, we can approach it more and more.

2. THE ESSENCE OF PENITENTIARY REFORM.—I consider only those fundamental principles that are common to all systems, and I understand that the essential unity of prison reform, whatever may be the manner of its application, consists in removing whatever the ancient prisons possessed of cruelty, anti-hygiene, and immorality, and to make the punishment serve for the reform of the criminal. And I ask, in pursuing this noble end, have we not lost sight of the true object of punishment? And in applying this principle, are the means employed adapted to gain the real reform of the guilty?

Observe, then, in what manner we may derive profit from the rapid review we have just made of the prison-reform

movement. Consider well the subject upon which I shall address you a few moments longer, if you will give me your kind attention.

The condition of ancient prisons, the treatment and nourishment of prisoners, and their idle congregation were without doubt highly contrary to the health and morality of the prisoners, and consequently to the public interests and social security.

Desiring to remedy these evils, we often fall into the opposite extreme. We have so elaborately attended to the buildings, the cells, the food, and the treatment of the prisoners that many workmen who labor from morning to night to give a morsel of bread to their families, if they knew how they would be treated in certain prisons, they would perhaps prefer—in all save crime—life in the prison to that in their sorry attic. In some places they are so occupied in perfecting their prisons by the best methods of ventilation, heating, pavements, furniture, locks, supervision, and a thousand other details that the essential end of reform, the conversion of the guilty, has imperceptibly passed to a second place. On the contrary, pushing to the extreme the principle of moral reform, it is claimed that so long as the prisoner is unchanged he should remain in confinement. It would be useless, they say, to propose the release of the guilty before the reformation is complete, and the punishment would not be effective, even for public safety, if we returned to society a criminal who would commit new offences.

In the mean time the great public, seeing these exaggerations, and not seeing much good fruit in those who go out from the prisons, noticing at the same time the increase of crime, and that crime is frequently a profession, the exercise of which is only interrupted from time to time some months of the year when the offenders are in prison, cry out, smiling, that all this is but a Utopian theory, pity for rascals to the detriment of honest people. On the other hand, the positive school, of which the essential principle is fatalism, founded upon the conditions of a man's organization, innate or hereditary, upon his social surroundings; the locality of his birth and education; upon the impelling causes that determine his actions; sees in all these efforts for the moral reform of the

prisoner only the dream of visionaries. And if, in view of public safety, we occupy ourselves with the régime of prisons for the benefit of individual convicts, they see in the criminal only an invalid or an idiot for whom the hospital rather than the prison is the more suitable home.

And, after all, on which side is the truth? I will first say that I am not one of those who despise as folly the influences exercised on the moral tendencies of man, the condition of his organization, the society where he lives, and the circumstances in which he finds himself. So considerable a part of the human being as is the organization of the body, which is the covering and instrument of his activity and moral actions, cannot be set aside when we must estimate the moral value and the imputability of his actions. Two horsemen equally competent in horsemanship can mount, one an excellent horse and the other a sorry jade. If I am obliged to live in an unhealthy place no one can consider it a fault on my part if I am not as well as he who breathes with full lungs the pure air and oxygen of the mountains. The influence even of the bad horse can be such that every progressive movement is impossible; and the influence of a sickly climate can sometimes force me to take to my bed.

Now, all this can prevent the man from acting with entire freedom, but it does not destroy liberty itself. It is only necessary to say that it will require great care to secure utility from a poor horse or to overcome, at least to some extent, the deleterious effect of certain atmospheric conditions. Moral liberty, though narrowed in its exercise, always exists, though at times dormant, and by proper management and more vigorous efforts it can, to a certain extent, overcome these obstacles. Now, it is upon this slight liberty we must act to secure the improvement of the guilty. We tame lions; we can as well tame men.

I will say, in the second place, and I say no new thing, that the ancient prisons were frightful and unhealthy habitations, where the criminal stagnated in idleness and filth, where he was poorly fed, and was under the arbitrary power of guards and directors. Now that he has a proper prison and healthy food, obligatory labor and good discipline are not only just but necessary, in the interest of the criminal himself

and for that of the public. For, aside from the consideration of the fact that under certain circumstances the unhealthy prison can easily become a centre of infection, it is evident that, if the punishment is completed, you return to society a miserable invalid, incapable of earning his bread, and in addition to the obstacles which encounter each discharged prisoner he will find the greatest yet—his inability to get work, which, nine times out of ten, will cause him to commit new crimes. Besides, a good hygienic treatment, while improving the physical condition of the prisoner, renders him less irritable and predisposes him to mental struggle to improve himself morally. But every one can see that this self-treatment is powerless to secure the complete reform of the prisoner.

Humane treatment is necessary in order not to destroy or degenerate his vitality. At the same time, we must never forget that according to the immutable law of our being, every penalty entails suffering without which man will never apply himself to the practice of virtue for which his natural inclination is so feeble. By it he will see it is for his own good interest to become good that the suffering may cease.

Finally, it is necessary that the condemned endure suffering in order that the punishment may be withdrawn. He should not be treated with cruelty, but he should feel the pain. I will say that the reformation of the guilty, considered in itself, is a thing to be regarded as sacred and the surest guarantee of public security, but it must not be forgotten that it cannot be the direct end of punishment, however desirable it may be. Society should aim, above all, to repair the injury done by crime, and for that purpose it can do nothing better than to proportion each penalty to each crime. During the execution of the sentence as much as possible should be done to reform the prisoner, but when the term is ended society no longer has the right to retain the guilty in prison until his reformation, otherwise society becomes an agent for morals and education only. Proportion between offences and penalties would then be impossible, since even for the smaller offences, if the delinquent is not reformed, he might be retained in prison for years and perhaps always, and, on the contrary, after some months or even weeks the greatest criminals could be discharged if they show by their conduct they had re-

formed. That some endeavor to correct delinquents during their sentence and prevent relapses is very well, but to go further would be to misunderstand the character and limits of the punishing power of society.

But even in thus placing penitentiary reform upon a true basis and within true limits, a grave and final question remains to be answered. With all this help can we reach the reform of the criminal?

A man, although a criminal, does not cease to be a man. He is then subject, as well as the man generally regarded as honest, to the proper laws of human nature. I recall with tender emotion what was said to me some years ago at Christiania by an excellent director of the prison, loved by all who knew him—Mr. Petersen. "They speak to me of criminals," said he. "I am a criminal myself; for if I sound the depths of my soul I see there, in germ, the same crimes which are punishable in prisons. Only education, religion, the love of good, the struggle against self, have prevented the germs from developing and producing bad fruit." What Mr. Petersen said, each of us, if he is sincere with himself, is obliged to say. Then the treatment to apply to the reform of the prisoner is at the bottom the same as for the moral amendment of the free man, but there it is necessary to apply them more rigorously and with energy on account of the greater obstacles arising from vicious tendencies and inveterate habits.

For the efficient treatment of every malady three things are necessary. First, that there be a remedy having intrinsic curative powers. It then follows that there should be a qualified physician who can apply the remedy to the individual case, and finally that the sick should accept the remedy. Without these conditions no cure is possible.

Now the same thing occurs in case of the morally diseased. For the criminal the first efficient remedy is to arouse the conscience. In this he is aided by the recollection of his offense and made to feel how repulsive is crime and how beautiful is a virtuous life. This aids him to eradicate those vicious tendencies that result in crime, and to approach the ideal of a better life. In this movement is the essence of the remedy and secret of reform. Then follows improvement of the morals, which is best promoted by religion, of which all men

who know little or much of prisons and prisoners know the beneficial influence. The physician is, above all, the director of the prison, and he ought to be. Entering with a loving and devoted spirit the place of each convict, seeking to possess his confidence, laboring with each according to his disposition ; better than any one else he can contribute to the awakening of the conscience. The pivot of prison reform is a good personal direction. But the most essential and difficult thing is that the diseased—that is to say, the prisoner—shall consent to take the remedy. If he will not take it, the fault will not be in the remedy nor in the physician, but in the patient himself. We build prisons, but what is most difficult is to introduce in them the spirit of penitence. For in the spirit of man—above all, of the man thoroughly degenerate—there is such a strength of resistance to reformatory influences that the best efforts fall as upon granite.

Whatever, then, may be the perfections of any prison system that can be conceived, it is impossible to say in an absolute manner that it will secure the reform of the prisoner, because there must be a responsive action in his own nature for which a good prison system prepares the ground, but no human power can of itself work the cure.

Now as a good general, having met great resistance from the height of the fortress he has attacked, seeks to enter by a more accessible passage, this inward resistance which is met in consummate criminals has in these days aroused concentrated efforts for the reformation of the young, it being more easy to arrest vice before it has become crime. In this generation there has been an evolution in penal science analogous to that in medicine. Formerly the physicians treated only the exterior morbid phenomena and applied the remedy to the surface, not preventing the reappearance of the disease. Then began the study into its causes and sources, and the search for suitable remedies. But in time it was noticed that the source of the disease was often from within, and the consequence of habitual ill-treatment of the organization in defiance of its natural laws and sickly tendencies, hereditary or acquired. They then occupied themselves in devising a more rational régime to maintain or establish the normal and just equilibrium of each force, of each faculty, and of each organ.

Medicine thus gravitates now to hygienic principles. The same evolution applies to the idea of reform as connected with the punishment of the guilty. At first only the gravity of the injurious results of crime was considered, and they inflicted corresponding material punishments, cutting off the hand of the robber or decapitating the murderer. Passing later to consider in each case the circumstances of the crime and the degree of guilt chargeable to the criminal, they began to proportion the severity of the punishment to each case and to each individual. They thought finally to occupy the time of imprisonment for the moral reform of the prisoner ; and hence arose penitentiary reform. At present, seeing the difficulty of the reform of adults, they strive to correct the vicious youth before they become offenders. Thence comes the development of progress in these later days in houses of reform. Behold thus hygiene in penology, which tends to render the employment of remedies less necessary.

The tendency of modern legislation toward the mitigation of punishments requires more energetic action for prevention. In reform schools lies the hope for the moral reform of the dangerous classes. I dare hope that prison reform, if it shall produce no other benefits, will do immense good by leading many eminent men to direct their efforts to the reformation of criminal youth.

In the mean time we should not neglect to do all that may be to reform the guilty whose sentence has expired. Whatever importance is attributed to hygiene the physician who does not aim to prevent disease, and who does not wish to treat the sick, however incurable the disease, is not a good physician.

First, the means employed to reform the criminal does not always fail. There are some prisoners who reform themselves, and there are sick who heal themselves.

Besides, should we renounce all efforts for reform when we cannot always succeed ? As long as there is life there is hope, and this hope should never be renounced. Moral improvement is ordinarily very slow, but the true aim of all progress is not to reach the end at once, but consists in a constant advance. The regenerating inspiration which has made suffering an instrument of moral redemption is born of love. And

love is never discouraged. When we succeed in producing with a few only of the hardened criminals a real abhorrence of evil and love for the good, do you believe it would be time lost?

It is no small matter to impress on the most degraded of society this principle, superior to all differences of nationality, customs, and opinions, to which all hearts aspire: the moral redemption of man and of humanity.

But this moral redemption began in the world by a power from on high. We should then have faith that a day will come when evil will be vanquished, when truth, justice, and love shall reign here below for the consolation of this poor earth.

EARLY RISING NOT ALWAYS A VIRTUE.—Says *Harper's Bazar*: "Thousands of people have no choice whatever about their hour of rising in the morning. Later or earlier, that hour is fixed for them by the requirements of the office, the shop, or the class-room; by the time-table of the railroad; by the arbitration of their employers or the necessities of their employés. But in the cases manifold where personal liberty is enjoyed, it should not be thoughtlessly restricted simply because of the domestic tradition that early rising deserves praise and late rising blame. Breakfast may often be a movable feast without materially disturbing the routine of an orderly housekeeping day. Invalids, mothers whose rest has been broken by teething babies, and, above all, rapidly growing children, should have their sleep out. Nature demands this, and violence is done to her when sleepy people are rudely aroused from their beds. Early to bed is the single safe prescription to insure early to rise.

"We need to repeat it over and over to our hurrying, anxious, toiling American men and women: Rest, rest, and again, rest. Do not think time ill spent that is spent in repairing the ravages of our well-nigh incessant activity."

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

HYDROPHOBIA IN PARIS.—M. Dujardin-Beaumetz announced to the Academy of Medicine at its session, June 21st, that for the past year there had been published in *La France Médicale* four deaths from hydrophobia among those who had not been treated at the Institut Pasteur, while among the 221 cases treated at that institute there was no death. Since 1887, 1224 cases were treated at that institution, and only 12 deaths, equal to 0.89 per cent., while the average mortality among persons not treated was 15 per cent. During eleven years there have been 101 deaths from hydrophobia in the Department of the Seine. There has always been a very uniform ratio between the number of mad dogs and the mortality from hydrophobia. In 1891 there were reported 400 mad dogs; in 1892 the number is still greater. In view of this fact the Conseil d'Hygiène Publique de la Seine has asked for the enforcement of the law, and to make it obligatory in all cases to use the muzzle or the leash. In countries in which the use of the muzzle or the leash is obligatory hydrophobia has disappeared. Some have advanced the ridiculous idea that the muzzle would cause the dogs to become mad; that is not the case; hydrophobia is not a spontaneous disease.

M. Nocard thinks that police restriction is very necessary. The number of dogs at large and the number of mad dogs is constantly increasing. In every instance in which the law has been enforced madness among the animals diminishes in a remarkable degree. M. Nocard then offered the following resolution: "The Academy again declares that the prevention of dogs from running at large is the only means of preventing madness, and requests that the articles 51 and 54 of June be constantly and rigorously enforced."

MICROBES FOUND IN PATIENTS HAVING SMALL-POX was the subject of a very interesting communication to the Société

Médicale des Hôpitaux by M. Le Dentu, surgeon of the first class in the naval service. The doctor is attached to the École du Service de Santé, in the navy at Bordeaux, and has long been engaged in experiments in microbiology.

His conclusions are given as follows in the *Gazette Hebdomadaire* :

1. In small-pox death seems due most frequently to the general development of the streptococcus in the organization.

2. The streptococcus is found in the viscera, sometimes in an uncombined state and sometimes associated with rare colonies of other microbes—most frequently with the staphylococcus.

3. When the system is under the influence of small-pox the streptococcus acquires great virulence.

4. Small-pox, however light it may be, will always be a very grave affection if it be developed in a system already occupied by the streptococcus.

5. As treatment, the system must be preserved from invasion of the streptococcus.

In twelve autopsies on cases that died of small-pox, streptococcus were found eleven times in the culture. In the living subject M. Le Dentu was able to discover by means of puncture of the liver the presence of streptococcus in two cases of confluent small-pox. He has observed that the colonies of streptococcus become more numerous as death approaches.

In conclusion, M. Le Dentu suggests a limit to the conclusions that might be drawn from the facts given, and thinks that it may be found in cases in which the streptococcus infects only a particular locality in the system.

BROMIDE OF STRONTIUM is a subject on which M. Féré is experimenting for the purpose of determining the time necessary to eliminate it from the system through the kidneys. His conclusion, according to the *Gazette Hebdomadaire*, is that it is removed much more rapidly than the bromide of potassium, thus giving it a great advantage over the latter as a remedial agent.

THE IODIDES OF SODIUM AND OF POTASSIUM have been the subject of careful experiments by M. Lapicque for the purpose

of determining the relative effects of their action on the heart. His experiments were directed, says the *Gazette Hebdomadaire*, to determine the minimum dose of these agents capable of lowering the pressure in the circulation by increasing the frequency of the pulsations of the heart. He finds that the iodide of potassium is manifestly the most active of the iodides ; he regards it as a direct tonic of the action of the heart.

FOR IRRITABILITY OF THE BLADDER IN THE AGED.—Dr. Traill Green reports (*University Medical Magazine*, June, 1892) some cases of frequent micturition in the aged, in which immediate relief was obtained by the use of phenacetine in a ten-grain dose at bedtime. The effect continued during the day, and the frequency both day and night was reduced to about normal. In two of the cases the number of micturitions was reduced from six to seven nightly to one ; and in one case the patient did not get up at all during the night. The quantity of urine was not diminished, and it does not appear that it was necessary to use phenacetine continuously to get its useful effects.

ANTISEPTICS IN OBSTETRICAL PRACTICE.—“The importance of employing some antiseptic in the lying-in chamber,” says Dr. O. L. Lusk, of New York, “is recognized by every practitioner whose methods of treatment are based upon modern teachings. In the puerperal state, as is well known, a woman is rendered peculiarly susceptible to insanitary influences and infection, and hence it is the manifest duty of the obstetrician to secure thorough disinfection of the lying-in room, the bedding, and of the discharges from the patient. To accomplish this purpose we must make use of a disinfectant of high germicidal properties, but devoid of such objectional qualities as disagreeable odor and poisonous or irritant effects. I have found all these good features realized by Platt’s chlorides, which I have employed in a large number of cases with perfect satisfaction. It is a strong disinfectant, harmless, and free from odor, will not stain the bedding, and, in a word, accomplishes all that can be asked of it.”

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochran, M.D., State Health Officer, Montgomery.

Mobile, 31,076: T. S. Scales, M.D., Health Officer.

There were reported during the month of May 66 deaths, of which number 29 were under five years of age. Annual death-rate per 1000, 25.44. From zymotic diseases there were 12 deaths, and from consumption, 5.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

San Francisco, 330,000: J. W. Keeney, M.D., Health Officer. The total number of deaths during the month of May was 530—147 under five years of age, and 37 among the Chinese. The annual death-rate per 1000 was 19.20. There were 71 deaths from zymotic diseases, and 81 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000: C. M. Hammett, M.D., Health Officer. In the four weeks ending June 25th, 1892, there were 488 deaths, of which number 204 were colored, and 218 were under five years of age.

The annual death-rate was 25.3 per 1000.

From zymotic diseases there were 121 deaths, and from consumption, 48.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Nineteen counties, with an aggregate population of 202,317, report for the month of May a total mortality of 312, of which 146 were under five years of age, and 133 were of colored inhabitants. The annual death-rate per 1000 was 18.51. The principal causes of deaths were: Consumption, 30; pneumonia, 18; heart diseases, 10; bronchitis, 7; apoplexy, 5; typhoid-fever, 12; inanition, 9; and diarrhœa, 32.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Tenth Annual Report for the fiscal year ending October 31st, 1891, shows that there were 16,629 deaths reported for the year ending September 30th. The deaths reported under five years of age numbered 5012. From zymotic diseases there were reported 4585, and from consumption, 1975.

These figures are far from being a correct statement of the mortality of the State; the *Report* states that not over fifty per cent of the deaths are reported.

Evansville, 50,756: L. Worsham, M.D., Health Officer. There were 46 deaths during June, of which 15 were under five years of age. Annual death-rate per 1000, 10.64.

There were 5 deaths from zymotic diseases and 8 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored: Deaths in four weeks ending June 18th, 1892, 650, representing an annual death-rate of 33.38 per 1000. Of the total mortality, 241 were colored, and 257 were under the age of

five years. 134 deaths were from zymotic causes, and 65 were from consumption.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 459,062 : S. H. Durgin, M.D., Chairman. There were 895 deaths reported in May of which number 243 were under five years of age. The annual death-rate per 1000 was 23.39. There were 116 deaths from zymotic diseases, and 129 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of June, 1892, compared with the preceding month, the reports indicate that typho-malarial-fever, cholera morbus, cholera infantum, diarrhœa, dysentery, and consumption increased, and that small-pox, cerebro-spinal meningitis, membranous croup, puerperal-fever, pneumonia, pleuritis, and typhoid-fever decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was southwest (instead of southeast), the velocity less, the temperature was higher, the rainfall was 1.30 inches less, the absolute humidity was much more, the relative humidity was slightly more, the day and the night ozone were more, and the height of the ground above the water in the well at Lansing was five inches less.

For the month of June, 1892, compared with the average for the month of June in the six years 1886-91, scarlet-fever was more prevalent, and small-pox, measles, cerebro-spinal meningitis, puerperal-fever, intermittent-fever, typhoid-fever, remittent-fever, whooping-cough, inflammation of brain, influenza, erysipelas, and cholera infantum were less prevalent in June, 1892.

For the month of June, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was the same (southwest), the

velocity was less, the temperature was slightly higher, the rainfall was 2.20 inches more, the absolute and the relative humidity were more, the day and the night ozone were less, and the height of ground above the water in the well at Lansing was four inches more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of June, 1892, at sixty-nine places; scarlet-fever, one hundred and one; typhoid-fever, thirty-four, and measles at forty-two places.

Reports from all sources show diphtheria reported at twelve places less; scarlet-fever at ten places less; typhoid-fever at ten places more, and measles at three places more in the month of June, 1892, than in the preceding month.

Detroit, 220,000: S. P. Duffield, M.D., Health Officer. During the month of May there were 428 deaths, of which number 100 were under five years of age. The annual death-rate per 1000 was 22.90. From zymotic diseases there were 92 deaths, and from consumption, 41.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 292,574: W. W. Varick, President. The total mortality for May was 473—188 being under five years of age. The annual death-rate per 1000 was 22.9. The deaths from zymotic diseases numbered 88, and from consumption, 60.

Paterson, 80,000: J. L. Leal, M.D., Health Officer. During the month of May there were 128 deaths, of which num-

ber 33 were under five years of age. The annual death-rate per 1000 was 19.2.

There were 19 deaths from zymotic diseases, and 13 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany.

The total mortality for the month of May was 10,142. The average daily mortality was 328, against 353 in April, 354 in March, 371 in February; in May, 1891, it was 330, and in May, 1890, 280. The death-rate for the month, not allowing for the delayed returns, was 18.35, against 19.78 in April, and 20.00 in May, 1891. The infant mortality was 32.3 per cent; in April, 30.7, and in May, 1891, 28.6. From contagious and infectious diseases there were 139.43 deaths per 1000 deaths from all causes, against 128.29 in April, and 117.45 in May, 1891. The increase in zymotic mortality is entirely due to a larger number of deaths from measles, from which 253 are reported. Scarlet-fever shows the same mortality as last month and one year ago; this is likewise true of whooping-cough, typhoid-fever, malarial diseases and cerebro-spinal-fever. Diphtheria has diminished since the winter months, but is considerably more prevalent than last year; the number of deaths from it being 100 more than in May, 1891 and 1890. There were 13 deaths from small-pox, all of them in New York and Brooklyn. From typhus-fever 3 deaths occurred in New York. There were 1194 deaths from consumption, 11.6 per cent of the total mortality. Deaths from influenza have continued to be reported, but the mortality from this cause cannot be estimated.

New York, 1,801,739: Total deaths, 3912—1647 under five years. Death-rate, 25.54. Zymotic diseases per 1000 deaths from all causes, 178.85. Deaths from consumption, 451.

Brooklyn, 957,163: Total deaths, 1617—592 under five years. Death-rate, 19.90. Zymotic diseases per 1000 deaths from all causes, 135.00. Deaths from consumption, 203.

Albany, 97,120: Total deaths, 193—57 under five years. Death-rate, 23.73. Zymotic diseases per 1000 deaths from all causes, 212.43. Deaths from consumption, 24.

Syracuse, 91,444: Total deaths, 121—32 under five years. Death-rate, 15.80. Deaths from zymotic diseases per 1000

deaths from all causes, 125.00. Deaths from consumption, 23.

Buffalo, 278,800: Total deaths, 444—172 under five years of age. Death-rate, 19.27. Deaths from zymotic diseases per 1000 deaths from all causes, 151.00. Deaths from consumption, 52.

Rochester, 144,834: Total deaths, 229—49 under five years of age. Death-rate, 18.27. Deaths from zymotic diseases per 1000 deaths from all causes, 118. Deaths from consumption, 41.

NORTH CAROLINA.—Thomas F. Wood, M.D., Secretary, Wilmington. Eighteen towns, with a total population of 96,060, reported 146 deaths during May, representing an annual death-rate of 18.2 per 1000. There were 71 deaths under five years of age. The principal causes of death were pneumonia, 6; consumption, 22; heart disease, 7; diarrhoeal diseases, 25.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Small-pox.—On June 15th there were 27 cases in the State, as follows: Pomeroy, 19; Minersville, 3; Middleport, 2; Chester, 2; Jackson, 1. There have been 5 deaths, all in Pomeroy. Seven cases were discharged cured from the same place, 1 in Cheshire, and 1 in Gallipolis.

Cincinnati, 305,000: J. W. Prendergast, M.D., Health Officer. There were 425 deaths reported during June, of which 135 were under five years of age. Annual death-rate per 1000 was 16.72. Zymotic diseases caused 50 deaths, and consumption, 47.

Columbus, 101,945: Lee McBriar, M.D., Health Officer. The number of deaths during the month of May was 74. Of this number 23 were under five years of age. The annual death-rate per 1000—8.70—is the lowest in the history of the Board. The deaths from zymotic diseases numbered 17, and from consumption, 13.

Toledo, 90,000: A. W. Fisher, Health Officer. For the

month of May there were reported 109 deaths, of which 37 were under five years of age. Annual death-rate per 1000, 14.53. Zymotic diseases caused 21 deaths, and consumption, 11.

Mansfield, 15,000 : R. Harvey Reed, M.D., Health Officer. There were 8 deaths reported for the month of June, of which 2 were under the age of five years. Annual death-rate, 6.4 per 1000.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer. In the four weeks ending June 25th, 1892, there were 1601 deaths, of which 588 were under five years of age.

From contagious and infectious diseases there were 165 deaths, and from consumption, 191. Annual death-rate, 19.16 per 1000.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar. The number of deaths for the four weeks ending June 25th, 1892, was 429, of which 220 were under five years of age. From zymotic diseases there were 111 deaths, and from consumption, 32. Annual death-rate, 21.86 per 1000.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence. During the month of May there were 491 deaths reported in an aggregate population of 302,781, representing an annual death-rate of 19.4 per 1000.

There were 49 deaths from zymotic diseases, and 56 from consumption.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville.

The principal diseases, named in the order of their greater prevalence, in the State for the month of May were : Malarial-fever, consumption, pneumonia, typhoid-fever, croup, measles, mumps, diarrhœa, and scarlet-fever. Typhoid-fever was reported in the counties of Anderson, Cocke, Davidson, Hamilton, Montgomery, and Robertson. Measles in Hamilton, Hawkins, Marion, and Moore. Mumps in Anderson, Houston, Marion, and Montgomery. Scarlet-fever in Madison, Montgomery, and Shelby.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 233,700 : U. O. B. Wingate, M.D., Health Officer. For the month of May there were reported 346 deaths, of which 158 were under five years of age. Annual death-rate per 1000, 17.77. Zymotic diseases caused 72 deaths, and consumption, 25.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

CHOLERA, according to the most recent reports up to the time of closing this number (July 16th), was still advancing :

MADRID, July 14th.—The report of the Spanish Medical Commission that was sent to Paris to inquire into the nature of the epidemic of so-called "cholérine" has been received, and declares that the disease is Asiatic cholera. In consequence the Government has ordered that precautions be immediately taken along the Pyrenean frontier to prevent the introduction of the disease into Spain.

PARIS, July 15th, 1892.—There have been five additional

cases of "cholérine" at St. Ouen, and two deaths from the disease. Two deaths from "cholérine" are reported at Clichy and another one at Asnières. There were four deaths yesterday at St. Denis from the epidemic of "cholérine." At Aubergvilliers there were fourteen deaths from the disease.

LONDON, July 15th, 1892.—The authorities in Whitehall regard the state of affairs in Paris with the gravest suspicion. The urgency of the situation is accentuated by the fact that the issue of the French official records suddenly ceased three weeks ago. The reports of the cholera received from Eastern Europe are also very disquieting. The intended holding of the great fair at Nijni-Novgorod is regarded as a serious matter, tending to the widespread diffusion of the epidemic.

BERLIN, July 15th, 1892.—Stringent measures against cholera will shortly be decreed. The frontier guards will be vastly increased in number. All Russian arrivals in Germany will be subjected to a rigid medical inspection, and, in the event of the arrival of a person affected with cholera, the whole train on which he was a passenger will be disinfected and the patient will be isolated. If the disease should cross the frontier, the district in which it breaks out will be surrounded with a military cordon.

ST. PETERSBURG, July 15th, 1892.—An official report gives the following figures as the number of deaths from cholera on July 12th: Astrakhan, 277; Baku, 48; Tsaritzin, 46; Saratoff, 24; Samara, 11.

The municipal authorities throughout Russia seem to have at length realized the necessity of adopting energetic measures to prevent the spread of cholera. Towns in which the disease has not yet appeared are procuring large stocks of disinfectants, doctors have been specially engaged, and depots for the gratuitous distribution of medicine have been opened.

The disease is raging with extreme virulence among the workingmen of Tsaritzin, where many of them died three hours after they were attacked.

MORTALITY STATISTICS.—M. Delaunay has studied the reports of death-rates between certain ages in France, and has given his conclusions as follows as they have appeared in the *Gazette Hebdomadaire*:

1. The death-rate, or, as he calls it, the acceleration of mortality, has decreased from 1 to 16 years of age.
2. It has increased from 16 to 32 years.
3. It has diminished from 32 to 54 years.
4. It increases between 54 and 82 years.
5. There is a diminution for all ages above 82 years.

The result of his studies shows that the periods relatively favorable for life are from 1 to 16 years ; from 32 to 54 and over 82 years. The periods relatively unfavorable are from 16 to 32 years, and from 54 to 82 years.


The report does not state how far back the inquiries extended. The statistics have a special importance for life insurance companies, and especially for those organized on the assessment plan. The first sixteen years, although favorable for the prolongation of life, are not available for insurance ; the second period of sixteen years is unfavorable for insurance ; this is contrary to the generally received opinion, for young men from twenty to thirty or more years of age are most eagerly sought for as members.

The period favorable for insurance organizations begins at 32 years of age and extends to 54, including 22 years. The long period of 28 years, extending from 54 to 80 years, is classed among the unfavorable.

Life insurance organizations based on the assessment plan generally limit the age for the reception of members from 18 to 55 years, a period of thirty-seven years, fourteen of which come under the class ranged as unfavorable ; this places fully 38 per cent of the whole on the undesirable list. It is not generally considered that these fourteen years embrace the period of life most favorable for the development of many of the acute diseases ; it embraces what may be termed the reckless period, when men carelessly expose themselves, and, if sick, neglect proper care ; it embraces, too, the period during which latent hereditary consumption is most frequently developed. It embraces also the period during which the elements in the latent form to be developed later are detected with greatest difficulty on examination.

T. P. C.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, Dr. A. N. BELL, Brooklyn, N. Y.

IS THE NEW YORK QUARANTINE TO BE IGNORED?

THIS question is suggested by the following letter of Supervising Surgeon-General Wyman, of the United States Marine Hospital Service, recently addressed to the Secretary of the Treasury :

" I have respectfully to invite your attention to the fact that cholera is spreading in the far East, official information having been received at this bureau of its prevalence in the Caucasus, in Persia, in India, and on the western shore of the Red Sea. Newspaper reports also indicate that it is spreading in Russia.

" The medical press of Great Britain, which is not given to alarm, calls attention to the serious danger which is threatening Europe by reason of the above-named extension of the epidemic. It is, therefore, incumbent upon the Treasury Department to be forehanded in the use of such means as it possesses for the exclusion of the disease from this country.

" A serious matter for consideration is the baggage of immigrants arriving at the port of New York, coming directly from the infected districts or from districts contiguous thereto. Under the present arrangement the baggage of all immigrants passes without detention through New York to the points of destination, the health authorities of some of the States being notified when this baggage comes from suspected localities or ships.

" I have now to urge that baggage of the kind just mentioned be thoroughly disinfected on Ellis Island before being permitted to be sent forward. The surgeon of the Marine Hospital Service in charge of the medical department of Ellis Island can readily learn from the abstracts of sanitary reports sent weekly from this bureau exactly what districts are infected or are suspicious. He is also informed with regard to any infected vessel which may arrive at the port of New York, and the baggage of immigrants from the said districts, or from said vessels, may, without great detention, or great expenditure of labor, be disinfected thoroughly on Ellis Island.

" For this purpose there should be two or three large steam disinfecting chambers established, for which there is ample

room on the island, and I would respectfully urge that steps be immediately taken for the establishment of such a plant. The disinfecting chamber would also be used for the clothing of persons who have been exposed to diphtheria, scarlet-fever, measles, and small-pox, there being constantly a number of immigrants with these diseases under the care of the immigration service."

Surely Dr. Wyman is not ignorant of the fact that a steam-disinfecting chamber has been constructed, and for more than a year in use at Hoffman Island, for the very purpose of his requisition upon the Secretary of the Treasury. And, in so far as his sweeping allegation that "the baggage of immigrants arriving at the port of New York coming directly from infected districts or from districts contiguous thereto . . . passes without detention through New York to the points of destination," implies that no attention is given to such baggage at quarantine, he is misinformed.

Five years ago—and indeed for several years previous—such a requisition would have been justifiable, because, in consequence of Governor Hill's persistent disapproval of appropriations to make needful repairs and equipment of the New York quarantine plant, it had fallen into a most disgraceful condition, at the imminent risk of the introduction of cholera. But the appearance of the disease at quarantine in 1887 was fortunately estopped there, notwithstanding the disgraceful condition of the establishment. Yet the escape was so narrow that the action of Mayor Hewitt, urged by the medical profession of the city and the public alarm, had the effect of forcing the governor's approval of appropriations for repairs, which were promptly undertaken. Though the repairs are not yet complete, in default of sufficient appropriations, they are sufficiently advanced and the establishment is altogether sufficiently equipped to leave no justification for Dr. Wyman's apparent intention to assume its function, in case his request is granted by the Secretary of the Treasury. But with regard to the fitness of Ellis Island, however commodious it may be for the purpose indicated by Dr. Wyman, without calling in question the extent of the functions of the Marine Hospital Service, beyond what is expressed in the law transferring the care of immigrants, on being permitted to land at New York,

from State to National disposal, the people of New York, many years ago, when the population was less than a tithe of what it is now, decided that Ellis Island was too near the city for a quarantine station. If the medical officers of the Marine Hospital Service at Ellis Island have any evidence whatever that infected baggage is at any time passed by the health officer at quarantine, it is clearly their duty, the same as it is the duty of the boards of health of New York and Brooklyn, on any such occurrence, to *send it back to quarantine*—the place designated by law for its disinfection. And so too with regard to infected vessels and persons from them ill with infectious diseases. The duties and powers of the Marine Hospital Service are clearly defined by law—to render aid to States and communities, to protect the public health when requested to do so by the authorities, and to take action for the prevention of the spread of epidemic diseases when they are beyond the control of local and State authorities. But more than this is an assumption not justified by law.

“THE HOLT SYSTEM OF MARITIME SANITATION.”—A wooden sign, thus designating the system of sanitation practised at the Mississippi Quarantine Station, below New Orleans, has recently been made the subject of acrimonious discussion between the friends of Dr. Joseph Holt (again a resident of that city after a few years' absence) and Dr. C. P. Wilkinson, the recently appointed Quarantine Officer at that place, instead of Dr. William G. Austin, relieved after four years' excellent service.

Every reader of THE SANITARIAN is familiar with Dr. Holt's original introduction of the method so well named in his honor—the *method of practical sanitation* instead of the barbarous and obstructive practice of unnecessary detention of persons and merchandise previously practised at New Orleans as elsewhere. Dr. Austin signalized the beginning of his service by the erection of the wooden sign referred to over the front of the disinfecting building, not only as a deserved compliment to him who originated the system, but as an assurance to merchants and merchantmen alike at New Orleans, and to sanitarians everywhere, that at *this port* of New Orleans—the most important port of entry in the world to protect against the introduction of yellow-fever—*sanitation is practised*.

To say that this act of Dr. Austin was everywhere recognized as a just tribute to Dr. Holt and gratification to the mercantile community is but a feeble expression of the satisfaction it gave. He might have written underneath: "Under this sign I conquer." But it was not necessary. Dr. Austin was no stranger to the people of New Orleans. But to the amazement of the passing merchantmen, the people and the State Board of Health of Louisiana, among the first acts of Dr. Austin's successor was an order to remove "the Holt System of Sanitation," and put it in the furnace! The order appears to have been executed, and Dr. Wilkinson, in an exceedingly lame excuse for his act, in reply to the criticisms upon his action, endeavors to excuse it by intimation that he had done more toward the institution of the measures in question than Dr. Holt.

Dr. Wilkinson succeeded Dr. Holt as President of the State Board of Health, and his appointment is well known to have been greatly influenced by Dr. Holt. That he took good hold of the work where Dr. Holt left off and did much to promote it is to his credit; but that he is in any sense the author of the system, or that, because "that portion of Dr. Holt's system known as the heating chamber is now entirely different from what it was when he left it. The engravings of each are on file, and your paper (*Times-Democrat*) has been furnished a copy of each. The cost of Dr. Holt's heating chambers was about \$1200; the cost of those at present in use was over \$10,000. What an enormous sum of money to expend for 'a few unessential particulars.' " . . . And, "Some days after I had taken charge, I ordered this and other signs on the station removed, because they were unsightly"—without any intimation whatever that it was to be replaced by a slightly one, should be derided by the public press and spurned by the State Board of Health as a conceited detraction and excuse without reason, is certainly not surprising.

Some of Dr. Wilkinson's friends are as unfortunate in their attempt to uphold him as he is himself in his own defence. They would have people believe that because Dr. Holt did not discover the disinfecting properties of sulphur, steam, and corrosive sublimate, but only *the means of reducing their application to a system*, and by this means doing away with the barbarities of unnecessary quarantine of persons and unchaining commerce: that because he only did this, and was not the

first to discover the elements which he combined, the credit is not his !

To the credit of the Louisiana State Board of Health, June 23d, 1892, Dr. Oliphant presiding, Dr. Kells offered a resolution to the effect that as a sign bearing the inscription of "The Holt System of Maritime Sanitation," at the quarantine station on the Mississippi River, had been taken down by the quarantine officer without the consent of the Board, that the same be restored or a new one be put up resembling in style and lettering the one taken down.

The motion was seconded by Mr. Dunbar, and the matter was discussed at length.

The following resolution was then offered and adopted :

" *Resolved*, That this Board cause to be erected in a prominent place at the quarantine station on the Mississippi River a sign bearing the following inscription : 'The Holt System of Maritime Sanitation.' "

Our knowledge of the merchants of New Orleans justifies the suggestion that the foregoing resolution be amended by them by striking out the word sign and inserting in its place bronze tablet. It would cost them considerably less than one cent in the dollar for the advantage the system has been to commerce for any single year since it was first instituted.

STEAM DISINFECTION, we are glad to see, is "not without honor save in its own country." Its efficacy was first discovered and its application was first made in this country, and it has been persistently urged here for more than forty years.

It was effectually applied to the U. S. Quartermaster's steamer *Delaware*, infected with yellow-fever, at the New York Quarantine in 1862. It was comprehended in the detail of disinfecting measures in the New York Quarantine law in 1863, and special provision made for the disinfection of clothing by it at the Quarantine Hospital in 1871. It was used to disinfect all the cholera-infected baggage and clothing of the *Silesia*, and for the disinfection of the cholera-infected ship *Britannia*, at quarantine in 1887. And, as above referred to, it has been systematized and in practical use at the Mississippi Quarantine, below New Orleans, for several years. All of which and much more of its use has been described in

THE SANITARIAN from time to time from its outset. Notwithstanding "*Reform of the Quarantine System*" by the use of steam disinfection appears for the first time to have captivated the New York *Herald*. It reports that :

" At a late meeting of the Paris Academy of Sciences, M. Brouardel communicated an exceedingly important paper on the sanitary system adopted by the Vienna Conference last January for preventing cholera and other pestilential diseases from penetrating Europe by way of the Suez Isthmus. The new system will be as valuable in America as in Europe.

" Hitherto the method employed for protecting countries from infectious diseases, especially cholera, has been that of quarantine, inaugurated in the fifteenth century. Passengers from contaminated regions are isolated in the so-called lazarets and their baggage subjected to different vapors, supposed (though sometimes erroneously) to possess disinfecting virtues. When navigation was slow and only a few persons had to be isolated, the old system was conducted without very grievous consequences. But with the vast increase of tonnage in recent years quarantining involves shipping in great expense and subjects travellers to sore inconvenience and delays.

" To obviate these very serious drawbacks, inseparable from the old quarantine system, or to devise a better method by which the passengers and crews on a large number of vessels and their clothing can be freed from germs of fatal infections, has long taxed the ingenuity of the ablest sanitarians and hygienists. The French deputies in the recent Vienna Conference have secured the adoption of a plan which promises to accomplish all that is desired. Their plan is to employ as a disinfectant steam under pressure, the efficacy of which in destroying pathogenic microbes has been experimentally demonstrated and was practically tested with the best results on the Pyrenees in the last Spanish cholera epidemic. On that occasion the linen of passengers was purified in heating ovens by steam under pressure, and the cholera patients, real or suspected, were isolated.

" The sanitary conferences of 1851 at Paris, of 1866 at Constantinople, of 1874 at Vienna, and of 1885 at Rome all failed to agree upon a measure of satisfactory reform of the quarantine system. But this year's Vienna Conference has succeeded. It has adopted, with practical unanimity, the plan sketched by M. Brouardel, which deserves the most careful and immediate attention of all the great powers, especially the United States.

" Under the new (!) system those ships reaching the Suez Canal from the extreme Orient, which since their departure

have had no case of cholera on board, are allowed a perfectly free passage. Those which have had cases of cholera during the voyage, but none for seven days before arrival, will be allowed to pass the canal in quarantine, provided they have a medical officer and a disinfecting stove, because if a new case breaks out, the doctor can carry out the disinfection necessary. But infected vessels having cholera cases on board, or having had a case within seven days of arrival, will be detained, their sick disembarked and isolated.

"The proposed reform promises both to secure greater immunity from the spread of pestilential germs and to relieve shipping and travellers from many of the inconveniences, vexations, and delays of the present system of quarantine. It relies on steam, which is the best germicide. Anything that will kill disease germs is a disinfectant. Fire is the quickest and most perfect disinfectant. This, of course, is unavailable. But, next to fire, steam is to be preferred, because under pressure it kills all deadly bacteria, and is more reliable than chemical disinfectants. Chemicals can be adulterated, and thus their bactericidal power may be so lessened that after the quarantine officer has applied them to the clothing and baggage of immigrants the invisible germs may remain alive. But there can be no adulteration of steam, no weakening of its germ-killing force, and no possible way in which it can be made ineffective as a disinfectant. Infected clothing once steamed is infallibly cured of any microbial taint. Klein's experiments proved conclusively that steam at 212° Fahrenheit destroyed all contagia. In one instance only was there room for doubt. This was in the case of highly resisting anthrax exposed to steam for five minutes only.

"In view of the current reports of cholera in Europe, New York should be immediately supplied with means for carrying out a quarantine of disinfection as well as a quarantine of detention. This probably can be best done by adopting the recommendation of the Surgeon-General of the Marine Hospital Bureau, which we published last Saturday, to establish a steam plant at this port."—*New York Herald*, July 15th, 1892.

Surely the *Herald* has a new editorial corps—one that is not familiar with the quarantine laws of New York or with their administration; nor, moreover, most surprising of all, with the paraphernalia of the quarantine establishment, or it would have long since learned that foreign nations have much more to learn about efficient quarantine methods from us than we have from them; and that the recommendation of the Surgeon-General of the Marine Hospital Service is an assumption of superior competency of the service of which he is the chief,

to protect the public health, over the State's own chosen officials, whom he seems to ignore ; an assumption by no means justified by the efforts of that service as heretofore exercised. Moreover, that which Klein has recently proved—the disinfecting power of steam—A. N. Bell, who is now editor of THE SANITARIAN, demonstrated as long ago as 1848. He and others in this country have many times verified it since. And Dr. George M. Sternberg, U. S. Army, preceded Klein by several years in demonstrating the superiority of steam as the most reliable of all means for killing tangible bacteria.

QUARANTINE SERVICE ON THE ST. LAWRENCE.—Dr. F. Montezambert, Medical Superintendent of the St. Lawrence Quarantine Service, at Grosse Isle, reports for the year 1891, infectious disease on board thirteen vessels.

The diseases so reported or discovered were small-pox, chicken-pox, yellow-fever, enteric-fever, scarlet-fever, and measles.

The admissions to the quarantine hospitals numbered 59. One death took place in hospital—that of one of the crew of the steamship *City of Lincoln*. He died of enteric-fever (typhoid) complicated by inflammation of the lungs. Small-pox was, above all other diseases, the one which gave the department the most concern.

The special deficiencies urged are : Steam disinfection plant for clothing and effects.

It has no appliances for the drenching with mercuric chloride solution of the infected vessel.

It had sulphur furnaces on a fumigating steamer ; but that steamer had to be condemned, and has not as yet been replaced.

Disinfection of clothing and effects by steam in properly constructed cylinders, drenching the vessel with mercuric chloride solution, and fumigation of emptied holds, steerages, etc., by the blast of sulphur dioxide gas from properly constructed furnaces, are the universally approved methods of modern maritime sanitation.

These methods are not the craze of any one over-enthusiastic sanitarian. They have the recognized, tried, and established acceptance of all sanitary workers.

These appliances are also in use at many other places, as, for instance, Boston, New York, Charleston, Pensacola, New Orleans, Galveston, etc., giving entirely satisfactory results in each instance.

Such positive results, however, as have followed the introduction of this modern scientific system at the Mississippi Quarantine, for instance, may be understood and appreciated by all. Previous to its introduction there, New Orleans and the Mississippi Valley suffered frequently and severely from yellow-fever, introduced by the shipping. Commerce by way of the Mississippi during the summer or fever months was almost *nil*. Since the introduction of modern methods of maritime sanitation at the Mississippi Quarantine in 1885, scores of infected vessels have been treated there for yellow-fever, and that with such complete success that not one case of the disease has been introduced to the city by way of the shipping. Trade by the river now goes on in summer the same as in winter, practically unhampered. The port has been opened to the fruit, coffee, and other trades, and its commerce increased by many millions of dollars.

Surely until these deficiencies are supplied, the quarantine will continue to be a great tax upon commerce, on account of the necessary detention of vessels and merchandise in default of them, besides the danger to the public health.

THE PROGRESS OF STATE MEDICINE AT THE RECENT MEETING OF THE AMERICAN MEDICAL ASSOCIATION was chiefly represented in the excellent address on "The People and the Public Health Movement," by J. Berrien Lindsley, M.D., Secretary of the State Board of Health of Tennessee, printed in full on other pages of this number.

The Report of the Special Committee of the Association Appointed to Petition Congress to Create a Department and Secretary of Public Health, also printed in full on other pages, deserves the careful attention of the reader, for the reasons advanced by the chairman of the committee in support of the proposition.

Readers of THE SANITARIAN know that it has not favored this project. The report is an elaboration of the weakness of the bill which it advocates—urged more from the standpoint

of curative medicine and its votaries than from practical sanitation. In so far, however, as the chairman of the committee interprets the action of Senator Harris in having introduced another bill (that published in our June number) as an indication of his having abandoned the bill he introduced in December last, we are persuaded, by our knowledge of Senator Harris, that he is mistaken. Senator Harris has so long been chairman of the Senate Committee on Epidemic Diseases that his mind is well stored with resources for his effort to devise means for their prevention. And being satisfied, as Dr. Comegys represents, that neither the bill which he had before introduced nor that introduced by Senator Sherman would be acted upon, he doubtless consented to introduce the third bill (on March 24th), "Granting Additional Quarantine Powers and Imposing Additional Duties upon the Marine Hospital Service," as being possibly the best he could do during the present session of Congress. Objectionable as that bill is in some respects, in default of something better, we should be glad of its enactment into law, with the hope of its being improved upon hereafter.

The *Section* on State Medicine was rather better attended than usual, during recent years, and the papers read attracted close attention.

"The Responsibility of the National and State Governments for the Protection of the Purity of the Water Supplies," the address of the chairman, Dr. Benjamin Lee, of Philadelphia, Secretary of the State Board of Health of Pennsylvania, in particular, is of universal interest. It will be published in full in our next issue.

Dr. R. Harvey Reed, of Mansfield, O., read the report of the Committee on "Improvement in the Work of the Section," and Dr. D. F. Lincoln, of Geneva, N. Y., read that of the Committee on "School Hygiene."

Next followed a paper by Dr. Reed on the "Meat Question of this Country." He took strong ground in favor of a full investigation of the sanitary character of the meats of the country, saying the society owed it to itself and to the public to see that the wholesome character of that portion of the public food should be determined. He said there was excellent ground for the belief that many cattle afflicted with

tuberculosis were being slaughtered and their meat sold to the public for general consumption. If such were the case, it should be known and the efforts of the profession everywhere directed to a stoppage of the traffic. He quoted Dr. V. C. Vaughn, of Ann Arbor, as authority that the meat of cattle afflicted with tuberculosis would produce that disease in human beings whose systems were in a condition to be inoculated. In furtherance of his ideas he moved that the chair appoint a committee to visit the large packing houses of the country and make a full investigation.

Medical Director Gihon, U. S. Navy, asked where the funds to pay the expense of the committee were to come from.

Dr. Reed replied that he would serve without pay, and the committee could be made up of similar members. Dr. Reed also said there were twenty-four abattoirs in the United States, only fourteen of which were under Government inspection. He said the sole object of the committee should be the protection of the public health, or, in other words, to see if the Government inspection now in vogue is sufficient. The resolution to appoint a committee was adopted.

The next paper was on "Needful National Legislation for the Protection of Human Life." It was published in full in July number.

Dr. C. G. Comegys, of Cincinnati, in leading the discussion on Dr. Bell's paper, coincided with its general terms, but was decidedly in favor of a Cabinet officer who should be Secretary of Public Health. He differed from all who held that this would be entering the domain of politics, and held that it was far more important for the general good than a Secretary of Agriculture. Dr. Jerome Cochrane feared that State and local medical societies would be overshadowed in their usefulness by any centralized medical power like that proposed. He rather favored the organization of a bureau similar to that of the Bureau of Education, than a board, even such as that provided for in Senator Harris's bill. But he objected *in toto* to such a department as that proposed and advocated by Dr. Comegys.

Dr. Charles H. Shephard, of Brooklyn, read a paper on "Public Baths a Preventive of Disease," in which he gave an historical sketch of Roman and Turkish baths, and urged a

return to the use of such baths as a public necessity for the prevention of disease. "They should," he said, "be established throughout the land, at public expense, placed under medical supervision, with admission at nominal rates, so that the poorest individual could partake of their advantages with a feeling of self-respect in paying something for the help and comfort to be derived therefrom. They should be made more attractive than the saloon, and thus prove a more powerful antidote than any law of prohibition. This would react on the social life of the masses. By purifying the people we would quickly purify their homes.

"Heretofore the work has been left to private enterprise, but the time is fast approaching when it should be entertained on a larger scale than anything yet attempted. The public, who are to be the chief beneficiaries, should have the privilege of sharing the expense as well as the direction of such institutions.

"The endowment of public baths was among the noblest actions of the Roman emperors. Eight hundred of those institutions adorned the capital of the empire, and they supplied, during many eventful years, almost the only medicine to a people distinguished for their corporeal and mental vigor.

"If prevention be better than cure, then to found a great public bath would confer a grander blessing than to erect a hospital. To provide an institution which should bring refreshment and vigor to the overworked, healing to the sufferer, warmth, comfort, and self-respect to the victim of squalor, poverty, and neglect would be to raise a cenotaph more glorious

" 'Than ever from attic or Etruscan lands arose.' "

In leading the discussion on Dr. Shepard's paper, Dr. A. N. Bell, of Brooklyn, said he had a fear that, unless public Turkish baths were under strict medical supervision, they would be used immoderately by the public, especially if they were established before the public's mind was properly educated upon their hygienic use.

Dr. Ulrich said he had visited Pompeii, which was a city of about 30,000 population at the time of its destruction. Only one third of the city had been excavated, yet three large baths

were found, in which there were cold, warm, and tepid departments. He thought the public would quickly be educated to make the public bath their place of enjoyment, and thus the saloon would be deprived of its greatest support.

Dr. Benjamin Lee, of Philadelphia, spoke of the bath as an invaluable therapeutic agent, and hoped to see the adoption of the warm bath as a municipal hygienic institution generally throughout the country.

Dr. Laurence F. Flick, of Philadelphia, spoke on "Voluntary Association for the Prevention of Tuberculosis." He said the medical profession now generally accepted the fact that tuberculosis is a contagious disease. The discovery, however, is yet too new to expect any preventive measures by State boards of health or other public authorities. In Philadelphia during the past few weeks there has been formed the Pennsylvania Society for the Prevention of Tuberculosis, which proposes to educate the people in the methods of prevention and to furnish the same where the afflicted families are too poor to pay for them. Dr. Flick was satisfied that 2000 lives had already been saved in Philadelphia by the efforts already made without an organization.

Dr. S. P. Duffield, of Detroit, said he had been fifty-two years a resident of Michigan, and he could remember the time when people from the East came to Michigan to get well of consumption, and many were certainly healed. That was before the pine forests were destroyed. The climate of the State had been changed very much by the loss of the forests, and as a result tuberculosis was on the increase. Dr. Duffield said the cure for consumption was plainly a change of nutrition and a change of climate.

Dr. T. D. Crothers, of Hartford, Conn., read a paper on "The Sanitary Side of the Drinking Problem," which concluded the session. Dr. Crothers said that in 1891 over 800,000 persons were arrested in the United States for inebriety and crimes committed under the direct influence of drink. There are to-day, in addition to the above, over 1,000,000 unrecognized inebriates who are at perfect liberty to go on in their career, producing drunkenness, crime, and pauperism, which are the most unsanitary conditions that now threaten public health and morality. The army of neurotics unrestrict-

ed are propagating and raising up paupers and criminals for the next generation, and the only remedies offered by intelligent society—the police station and workhouse—only aggravate the ailment and make the condition of society constantly worse. The law courts, viewed from a scientific standpoint, are simply farces in their blundering and benighted efforts to provide a remedy by dispensing fines and other punishments. The fact that the list of these cases is constantly growing is proof sufficient that the remedy now provided is no remedy, and being no remedy, is plainly a monstrous and useless cruelty. Dr. Crothers elaborated a plan for the cure of the disease of drunkenness, which included various degrees of quarantine, and said there was no hope for the relief of society from the great retarding influence of inebriety until the matter is taken in hand and treated from a thorough scientific standpoint. He would have drunken men placed in a restraining hospital, where every possible remedy would be administered and every safeguard thrown around them ; at the same time, they would be given an opportunity to become industrious and support themselves and those dependent on them. When regarded as cured, they would be discharged, and if they relapsed, a longer treatment would be required the second time. If found to be incurable, they should finally become inmates of the institution for life.

The paper was discussed and generally endorsed, Dr. James F. Hibbard saying he had for twenty years contended that drunkenness was a disease requiring scientific treatment, and those who treated it as a crime were little above savage nations.

The officers of the Section elected for the next ensuing year were : Dr. C. A. Lindsley, of New Haven, Conn., Chairman, and Dr. S. P. Duffield, of Detroit, Secretary.

A voluntary paper on "Kumyss" was submitted, and the section adjourned *sine die*.

The Detroit meeting was very largely attended. The number of physicians registered was 1055. Many ladies were in attendance. The low rate of one fare north of the Ohio River materially aided.

LITERARY NOTICES AND NOTES.

THE NEW YORK STATE REFORMATORY is of national repute for the excellence of its work. The Sixteenth Annual Report of the Board of Managers for the year ending September 30th, 1891, eminently justifies its repute. It is an elegantly executed pamphlet of 130 pages, illustrated with plans of the buildings and of the various industrial departments in detail, chiefly the product of the inmates. The letter-press, except the formal reports, was prepared by the editor of the *Summary*, under whose immediate supervision the photographs for the process engravings and the line etchings were made by inmate photographers and etchers; the type-setting and press work were done by members of the printing class, and the binding was done by members of the book-binding class. The number of inmates at the time of making up the report (November 30th, 1891) was 1313. The daily cost of maintenance for each inmate during the year was 41.7 cents, and the total cost of maintenance, \$183,565.48.

The earnings of the trade school, conducted less for profit than instruction, amounted to \$37,914.76. Besides which, much of the work required in the enlargement, finishing, and furnishing the chapel was done by the inmates—in the practical application of the trades and industries taught in the reformatory—to the amount of \$62,184.75, in carrying out the purpose of the Legislature in appropriating means to that end.

And, as remarked by the general superintendent: "If it is desired to increase the earnings of inmates at mechanical work, it can be readily done by supplying additional factory floorage and releasing to productive work during the day some of the time of inmates now devoted to instruction in trades. If we may erect a drill hall, thus making available again for moulders the foundry building, now used for drilling, this, together with the industrial building already erecting, will supply floor room and enable the giving of trades instruction at evening, making available some of the hours of the day for productive instead of instructive work."

The physician reports the aggregate sick list for the year, 133. Typhoid-fever—the largest number of any one disease—eight; simple fever, five; facial erysipelas, seven; phthisis pulmonalis, six; pleurisy, seven; pneumonia, four. Deaths, eight—from phthisis, four; typhoid-fever, pneumonia, sub-maxillary abscess, and typhoid-fever and capillary bronchitis, of each, one. Two cases of mental disease were transferred to the Auburn Asylum for Insane Criminals.

“Judging from the past,” the physician remarks, “it is reasonable to assume the increase in the number of inmates will continue, and the end of next year find the problem of overcrowding presenting itself for solution; not so imperatively, perhaps, as at the present time, as the extension will afford temporary relief, but as a question not to be ignored in considering the best interests of the reformatory.”

The managers again urge upon the Legislature, as they have in previous reports, the building of a prison which shall be a reformatory in fact, and constructed by trade classes from the convict grades. This can be done at moderate cost, compared with the ordinary methods, under contract supervision and authority. The overflowing population in the reformatory affords such an argument in favor of building another prison of like character that the Legislature is urged to consider the importance of the question in the light of the experience which the rapid filling of the institution has suggested.

The average period of detention of the present inmates is fifteen months, and the average detention of those paroled during the previous year was twenty-one months.

One hundred and twenty-one men physically or mentally defective or abnormally lacking in moral sense were treated in the gymnasium by systematic physical culture of baths and exercise with satisfactory results.

By aid of this treatment some men are improved who would otherwise remain incorrigible.

The whole number of inmates treated in the institution to date is 5266.

Biographical compendium :

Relating to parents: Heredity, 608, or 12.5 per cent; drunkenness (in ancestry), clearly traced, 1865, or 38.4 per

cent ; doubtful, 634, or 13 per cent ; temperate, 2360, or 48.6 per cent.

Education (in ancestry) : None, 660, or 13.6 per cent ; simply read and write, 1582, or 32.6 per cent ; ordinary common school or more, 2452, or 49.4 per cent ; high school or more, 215, or 4.4 per cent.

Pecuniary circumstances (in ancestry) : Pauperized, 232, or 4.8 per cent ; no accumulations, 3755, or 76.8 per cent ; forehanded, 892, or 18.4 per cent.

Occupations (in ancestry) : Servants and clerks, 531, or 11 per cent ; common laborers, 1734, or 35.7 per cent ; at mechanical work, 1638, or 33.7 per cent ; with traffic, 847, or 17.4 per cent.

The professions (so-called) : Law, 21 ; medicine, 39 ; theology, 15 ; teaching, 34 : 109, or 2.2 per cent.

Relating to themselves — environment : (a) Character of home, positively bad, 2550, or 52.6 per cent ; fair (only), 1936, or 39.8 per cent ; good, 373, or 7.6 per cent. (b) Duration of home-life, less than ten years, 217, or 4.5 per cent ; between ten and fourteen years, 288, or 5.9 per cent ; fourteen years, 1493, or 30.7 per cent ; up to time of crime, 2861, or 38.9 per cent.

Physical condition : Debilitated or diseased, 237, or 4.8 per cent ; health somewhat impaired, 383, or 7.9 per cent ; good health, 4239, or 87.3 per cent.

Mental condition—natural capacity : Deficient, 76, or 1.6 per cent ; fair, 970, or 19.9 per cent ; good, 3332, or 68.5 per cent ; excellent, 481, or 10 per cent. Culture : none, 1874, or 38.6 per cent ; very slight, 1767, or 36.3 per cent ; ordinary, 1101, or 22.7 per cent ; much, 117, or 2.4 per cent.

Moral Culture : (a) Susceptibility to moral impressions (estimated) positively none, 1632, or 33.6 per cent ; possibly some, 1977, or 40.5 per cent ; ordinarily susceptible, 1079, or 22.4 per cent ; specially susceptible, 171, or 3.5 per cent. (b) Moral sense, even such as shown under the examination, either filial affection, sense of shame, or sense of personal loss, absolutely none, 2067, or 42.6 per cent ; possibly some, 1698, or 35 per cent ; ordinarily sensitive, 856, or 17.6 per cent ; specially sensitive, 238, or 4.8 per cent.

Still more might be added, if space permitted, in illustra-

tion of the inestimable benefit of this institution to the State, and of the fund of knowledge which it affords to students of sociology. It is incomparably the foremost institution of its kind in the United States, if not, indeed, in the world. That it should be lacking in any respect in space or means to extend its beneficent work by neglect of the legislative authorities, can only be accounted for by the supposition that the legislators of the State fail to comprehend its utility. The report before us is worthy of the widest possible circulation, and it is earnestly hoped that action by the legislative authorities will be taken at the earliest time practicable for its needful enlargement.

HOUSE HEATING necessarily engages the attention of all housekeepers—indeed of everybody, whether housekeeper or not, in these latitudes; and how to accomplish it most effectually and most economically, consistent with health, requires deductions from practical knowledge of natural laws and the mechanical arts, which are never intuitive. An abundance of pure air to breathe is even more necessary to health than artificial heating, and, inasmuch as the air is more or less subject to consumption and contamination by all means of heating, the maintenance of the supply and purity of the air in heated rooms should be the first consideration in every method. Four years ago we had occasion to say of a book on the subject, then under review :

“ It constitutes one of the most valuable works on the subject of house heating hitherto published. It is a terse compendium of practical knowledge of all that is most useful on the subject, wholly ignoring an enormous amount of useless speculation upon the subject comprised in numerous volumes and the current literature of the day, written by persons who adopt theories, and vainly search for facts to sustain them—not worth the reading. *Per contra*, the work before us is alike commendable to major-domos who would be well informed on the subject, and to engineers of heating and ventilation, who cannot afford to do without it.”

Of that work * we now have a new edition, revised, to which

* *The Metal Worker Essays on House Heating, by Steam, Hot Water, and Hot Air. Arranged for publication by A. O. Kitteridge, Editor of the Metal Worker, etc. Price, \$3. New York : David Williams.*

has been added a selection from the criticism passed upon it, and a chapter on Proportioning Radiating Surfaces, by John J. Hogan. It is appropriately illustrated with elevations and plans of the structures to be warmed, and distributions of the pipes, radiators, and air shafts adapted to the several plans discussed, together with estimates of costs in detail—a thoroughly practical work, composed by practical men.

HOME WARMING AND VENTILATION, a brochure of sixty-three pages, is an issue of a collection of articles on the subject by Nathaniel C. Fowler, Jr. ; William J. Baldwin, M.E. ; Anson W. Burchard, M.E. ; Richard Swalwell ; John Hopson, Jr. ; Allan Forman ; John S. Billings, M.D., LL.D. ; J. Jenkins ; A. N. Bell, M.D. ; “ J. W. C. ; ” “ American Architect ; ” Loring & Phipps ; William Eassie, C.E., F.L.S., F.G.S. ; Albert H. Buck, M.D. ; W. P. Trowbridge ; Boston *Journal of Commerce* ; Joseph A. Woodhull. The declared purpose of the publisher of these essays * is “ the desire to present the most comprehensive collection of readable and thoroughly reliable opinions upon two subjects of vital moment to every man and woman,” in conjunction with an illustrated description of the “ Faultless Furman Steam and Water Boilers,” which, the proprietor claims, are thoroughly adapted to the consensus of opinion of the authors of the articles adduced. No matter what the purpose of the publisher, he has done the public an excellent service by the issue of a pamphlet which may be read with profit by every one who has a house to warm.

THE USES OF WATER IN MODERN MEDICINE, in continuation of what we have before said of this excellent work,† is a concise summary of the revival and extended application of one of the most useful means of curing disease, as well as preventing it. It opens with the technique of hydrotherapy, with procedures of the various means of applying water, and

* The Herendeen Manufacturing Co., Geneva, N. Y.

† By Simon Baruch, M.D., Attending Physician to the Manhattan General Hospital and New York Juvenile Asylum ; Consulting Physician to the Montefiore Home for Chronic Invalids, etc. Volume II. The Physicians' Leisure Library Series. \$2 50 a year ; 25 cents a copy. Detroit : George S. Davis.

a description of its therapeutical effects. This is followed by a statement of the indications for its use in numerous diseases, acute and chronic, with statistical results as observed by other practitioners, as well as by the author himself, in extensive clinical practice.

CEREBRAL MENINGITIS,* a term applied to inflammation of the membranes of the brain, appears to have been recognized, under various names, by the most ancient writers on medicine, but without any correct knowledge of its nature and treatment; insomuch that some of its most prominent symptoms were often regarded as wholly apart from any organic lesion whatever. But modern progress in medicine, especially of cerebral diseases, has opened up many avenues to study wholly unknown to the ancients, with the result of not only doing away with many meaningless terms, but, above all, of recognizing the symptoms of such diseases as the one under consideration with such a degree of certainty as to render them amenable to treatment. The author of the work before us has made excellent use of his opportunities to this end in such a summary of the history, nature, and treatment of cerebral meningitis as will not fail to be of interest to every medical practitioner who reads it.

THE NATIONAL POPULAR REVIEW † is a welcome addition to THE SANITARIAN'S exchange list of periodicals devoted to preventive medicine. Its editor has had a wide range of observation, and is favorably known by several contributions to the subject, particularly on climatology. His promise is "to assist those who desire to assist themselves," . . . since "we know that as Noah floated off in his ark at the deluge, that those who wish can, by proper self-instruction, save them-

* Its History, Diagnosis, Prognosis, and Treatment. By Martin W. Barr, M.D., Resident Physician of the Pennsylvania Training School for Feeble-Minded Children, Elwyn; formerly Resident Physician in State Lunatic Asylum, Harrisburg, Pa. Physicians' Leisure Library Series. Detroit: George S. Davis.

† An Illustrated Journal of Preventive Medicine and Applied Sociology, for the Profession and the People. P. C. Remondino, Editor. Sixty-four pages monthly; \$2 a year; 25 cents a number. San Diego, Cal.: J. Harrison White.

selves and theirs from many avoidable physical calamities." The needed self-instruction, however, means a good deal more than a mere offer of the ark of safety. Those who would benefit by it—ay, even those who stand in greatest need of it—are, for the most part, more like those who ridiculed Noah and spurned his offer of safety than like the sensible few who took timely refuge from the impending storm. Children are not expected to keep well or to make healthy adults without the constant care of their parents and guardians. But when they have grown out of that care, they are so much more easily instructed, by both precept and example, how to impair their health and contract disease than they are to sustain the one and avoid the other, that the practical sanitarian and the sanitary journalist alike ever finds it necessary to prosecute his work, line upon line and precept upon precept, against the powers of darkness and wilful purblindness, scarcely less prevalent against life-saving methods now than the people at large were in the days of Noah; they *won't* be saved. But the prospect is encouraging, notwithstanding. The multiplication of periodicals devoted to preventive medicine is a beacon at least, if not an ark. And the more there are of them, and particularly of those with capable projectors, like the one before us, the more they will be read and the better instructed the people will be and the longer they will live.

The leading subjects discussed in the number at hand (Vol. I., No. 1, July, 1892) are: "The Aim and Scope of the *National Popular Review*;" "Questions of the Day;" "Our Reviewer;" "Popular Sanitation and Medical Excerpts;" "The Home and the Nursery;" "Historical Recollections and Bric-à-Brac." The illustrations are, "Pasteur;" "Magnolia Avenue, Riverside, Col.;" "the Struggle between Vice and Virtue," and fancy headline letters.

REVIEW OF REVIEWS for July, although issued in less than five days after the Republican candidate for President was nominated, contains perhaps the most complete and intelligent character sketch of Benjamin Harrison that has ever been written. In the text of the article appears a portrait of the President at his desk, taken on June 15th, four days after the Minneapolis Convention adjourned.

In addition to this sketch of the nominee of the Republican Convention there are reviewed and discussed in the department "The Progress of the World," the work and proceedings of the Convention itself, and a galaxy of the portraits of the most conspicuous figures in that great political assembly—Governor McKinley, Chauncey M. Depew, Senator Wolcott, General John C. New, ex-Senator Ingalls, ex-Speaker Reed, and Mrs. J. Ellen Foster. There is, besides these, a striking portrait of Hon. Whitelaw Reid, the Republican nominee for Vice-President.

ST. GEORGE MIVART'S second article, "Natural Selection," which appears in the July *Cosmopolitan*, carries the reader a step farther with that celebrated thinker in his series on "Evolution and Christianity."

THE YEARLY REPORT OF THE PROGRESS OF THE MEDICAL SCIENCES THROUGHOUT THE WORLD FOR THE YEAR 1891*—the fifth annual issue of five elegantly gotten-up octavo volumes, comprising an excerpt of the contemporary literature of the whole field of curative and preventive medicine, by an accomplished corps of editors—is of great practical utility to, and ought to be possessed by, every medical practitioner and sanitarian who would keep abreast with progress. The text of this work has been compiled from one thousand and twenty-seven periodicals and one hundred and sixty-seven new books, monographs, and theses, of which it gives the gist, thoroughly and comprehensively indexed, so that any subject can be referred to at once.

Having reached its fifth birthday anniversary without succumbing to any of the diseases common to literary childhood, with constantly increasing force, a long and vigorous life may safely be predicted for this, the most comprehensive and the most useful annual to physicians ever published.

* Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by Charles E. Sajous, M.D., and Seventy Associate Editors, assisted by over Two Hundred Corresponding Editors, Collaborators, and Correspondents. Illustrated with chromo-lithographs, engravings, and maps. Five volumes. The F. A. Davis Company, Publishers, Philadelphia, New York, Chicago, and London. Australian Agency: Melbourne, Victoria. 1892.

THE DISTASTEFULNESS OF BOOK-KEEPING TO MOST PHYSICIANS is such that, unless some easy, comprehensive, and expeditious method is adopted, delayed bills, and consequently, lukewarm debtors and "dropping off" of patients are sure to follow. As a remedy for this chronic ailment and hindrance to the love and respect of patients, we have before us an excellent remedy—the "Physicians' Journal and Cash-Book," published by the Index-Page Publishing Co., Norwich, Conn. We have tried it, and find its effects to be very salutary.

THE MEDICAL REGISTER OF NEW YORK, NEW JERSEY, AND CONNECTICUT for the year commencing June 1st, 1892, edited by William T. White, M.D., published under the auspices of the New York Medico-Historical Society, is so admirably condensed as to give but little evidence of enlargement from year to year, notwithstanding the constantly increasing number of physicians, dentists, pharmacists, and institutions which it represents. In this, the thirtieth annual volume, the number of physicians registered is 8215, as follows: "New York State list, 3394; city, 2435; Brooklyn, 822; New Jersey, 961; Connecticut, 611. In New York City, besides those here registered, there are about 870 others practising medicine under one name or another, nearly one hundred of whom are known as advertisers. Special attention is invited to the large increase in the number of patients treated in the dispensaries of New York, showing in the aggregate more than 442,000 thus treated—a fact which signifies a large increase of pauperism, or that many persons who are able to pay for medical services seek gratuitous treatment. Upward of 6500 patients were treated in the various hospitals of the city, also a considerable increase over the previous year. As a reference book for knowledge of the professions, societies, and institutions with which they are connected, it is necessary to all who would be informed. Published by Messrs. G. P. Putnam's Sons, New York. It seems hardly necessary to say that it is gotten up in the best manner.

THE EVIL EYE IN ABYSSINIA.—Frederic Villiers, in the *July Century*, says: "The Abyssinian has a singular superstition regarding eating in the open. To him a fit of indigestion

from overfeeding would mean the evil eye. He would feel assured that some part of the performance of appeasing his appetite had been observed. In walking along a highway in this country, I came across what appeared to be a large bundle of washing just a little off the road. On approaching it, the movement going on within was plainly discernible. Covered up in their *shemas*, or cloths, were three men eating their midday meal. So much in fear are the people of the evil eye, that they carry amulets containing prayers, and rolls of parchment several yards long; and pictures illustrative of the triumphs of the good spirit over that ocular absurdity are kept in their houses for protection.

“If an Abyssinian sells you anything, and is well inclined, he will caution you to keep it indoors or covered up; for if an evil eye should fall on your purchase it may spoil or disappear, which latter contingency is much more probable in Abyssinia. I had some experiences of the kind of evil eye that caused goods and chattels to disappear. It gleamed for an instance in the head of an Ethiopian whom I caught walking off with some dollars from a pile in our paymaster’s tent; the corner of the evil eye smiled innocently when detected, but the smile faded away under the influence of the paymaster’s boot.”

AS TO AMERICAN SPELLING, Brander Matthews, in *Harper’s Magazine* for July, thus shows up some of its absurdities. “Far be it from me,” he says, “to appear as the defender of the ‘American spelling’ which the British journalists denounce. This ‘American spelling’ is less absurd than the British spelling only in so far as it has varied therefrom. Even in these variations there is abundant absurdity. Once upon a time most words that now are spelled with a final *c* had an added *k*. Even now both British and American usage retains this *k* in *hammock*, although both British and Americans have dropped the needless letter from *havoc*; while the British retain the *k* at the end of *almanack* and the Americans have dropped it. Dr. Johnson was a reactionary in orthography as in politics; and in his dictionary he wilfully put a final *k* to words like *optick*, without being generally followed by the publick—as he would have spelled it. Music was then

musick, although, even as late as Aubrey's time, it had been *musique*. In our own day we are witnessing the very gradual substitution of the logical *technic* for the form originally imported from France—*technique*. As yet, so far as I have observed, no attempts have been made to modify the foreign spelling of *clique* and *oblique*.

"I am inclined to think that *technic* is replacing *technique* more rapidly—or should I say less slowly?—in the United States than in Great Britain. We Americans like to assimilate our words and to make them our own, while the British have rather a fondness for foreign phrases. A London journalist recently held up to public obloquy as an 'ignorant Americanism' the word *program*, although he would have found it set down in Professor Skeat's 'Etymological Dictionary:' '*Programme* was taken from the French, so a recent writer reminds us, "and in violation of analogy, seeing that, when it was imported into English, we had already *anagram*, *cryptogram*, *diagram*, *epigram*, etc.'" The logical form *program* is not common even in America, and British writers seem to prefer the French form, as British speakers still give a French pronunciation to *charade*, which in America has long since been accepted frankly as an English word. So we find Mr. Andrew Lang, in his 'Angling Sketches,' referring to the *asphalte*: surely in our language the word is either *asphaltum* or *asphalt*."

ARABIAN HORSES.—Mr. H. C. Merwin, who has written some interesting papers for the *Atlantic Monthly* about horses, has in the July number a paper on them. Speaking of their pedigrees, he says:

"The Arabs have no written pedigrees; it is all an affair of memory and of notoriety in the tribe. Certain alleged pedigrees of Arabian horses, couched in romantic language, and represented as carried in a small bag hung by a cord around the animal's neck, have been published; but these are forgeries, gotten up probably by horse-dealers, Egyptian, Syrian, or Persian. The breeding of every horse is a matter of common knowledge, and it would be impossible for his owner to fabricate a pedigree so as to deceive the natives, even if he were so inclined. The Bedouins, it seems necessary to admit,

are in general great liars ; and they will lie (to a stranger) about the age, the qualities, or the ownership of a horse, but they will not lie about his pedigree, even when they can do so with impunity. To be truthful on this subject is almost a matter of religion, certainly a point of honor, in the desert.

“ How far back do these pedigrees run, and what was the origin of the Arabian horse ? These questions it is impossible to answer definitely. The Bedouins themselves believe that Allah created the equine genus on their soil. ‘ The root or spring of the horse is,’ they say, ‘ in the land of the Arab.’ This pious belief is shared by a few generous souls in England and America, a small but devoted band, who gallantly defend the cause of the Arabian horse against his only rival, the modern English thoroughbred. Chief among these faithful was the late Major R. D. Upton, who visited the desert himself, and who has recorded his experiences and his views. Major Upton concluded that the horse was found in Arabia ‘ not later than about one hundred years after the deluge, . . . if indeed he did not find his way there immediately after the exodus from the ark, which is by no means improbable,’ and this probability the author then proceeds seriously to consider. According to Major Upton and a few kindred spirits, all other breeds are mongrels, and the only way to obtain horse-flesh in its best and purest form is to go back to the fountain-head, to the horse of the desert.”

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NUMBER 274.

THE RESPONSIBILITY OF THE NATIONAL AND STATE GOVERNMENTS FOR THE PROTECTION OF THE PURITY OF THE WATER SUPPLIES.*

BEFORE entering upon the consideration of the question announced as the subject of my address, to which I shall ask your attention for but a few moments, it seems fitting that a brief allusion should be made to the subject of the reorganization of the parent association of which this body is one of the members, in the interest of scientific work as contrasted with the transaction of routine business and the reading of essays on abstract subjects. No one who has attended the meetings of the Association with any degree of regularity for the past ten years can have failed to observe the growing importance of the sections and the hold which they have on the interest of the members. To such an extent is this true that a writer in the *American Lancet* has not hesitated to formulate the terse phrase, "The Sections are the Association." If this be admitted, the step is an easy one to the further assertion, "The Sections should control the Association." The Chairman of the Section of Ophthalmology at the meeting of the last year devoted his address to indicating in what way the sections might control the Association, and courteously sent a copy of his address to the Chairman of this, and it is presumed of every other Section, if not to all the members of the Association. At the last meeting of this Section, a committee of three was appointed to confer with similar committees

* Address by BENJAMIN LEE, M.D., of Philadelphia, Chairman of the Section in State Medicine, American Medical Association, at Detroit, Mich., June 7th, 1892.

to be appointed by the other sections, to take up the whole subject of the development of the sections. A place has been given in the programme for the report of this committee, and an opportunity will then be presented for full discussion of this important movement.

The proposal of the Chairman of the Ophthalmological Section would virtually do away with the Judicial Council as at present constructed, as also with the Nominating Committee, and place all the business now discharged by those bodies in the hands of a council composed of ex-chairmen of sections for the three preceding years. It is claimed that this plan would give the smaller sections an equal representation in the general administration of the affairs of the Association with the larger sections, and that the members of such a council would be thoroughly familiar with the needs and interests of the sections. This would practically put an end to the system of geographical representation which has heretofore been warmly cherished by a large portion of the Association, and which they may feel loath to abandon. While seeing much in the scheme to approve, two objections occur to me which I feel are entitled to consideration. First, the work of the Judicial Council is often large in amount and exacting in character. The ex-chairmen of a section are apt to be earnest workers in the section and contributors to its programme and discussions. If this labor is assigned to them, is it not possible that it may prove so engrossing as to take them away from the sections, and thus diminish the interest of the latter. Secondly, eight out of the eleven sections are composed of men who are more or less strictly specialists. Of course it is gratifying and instructive to them to meet those who are following the same lines of work, to become acquainted with them personally, to exchange ideas with them, and profit mutually by one another's experiences, efforts, and discoveries. But if only such as are thus bound together by ties of business interest—and it must be confessed, after all, that section work has its business aspect to a very considerable degree—are to meet one another, listen to one another, talk to one another, and eat and drink with one another, will not the effect be to increase the narrowness of the profession and intellectual horizon, which their daily routine necessarily involves, instead of broadening the

view and widening the field of thought as one would like to feel to be the result of annual association with the great minds of every branch of the profession. For this latter reason the proposal that each section should have a stated social gathering of its own should not be too hastily adopted. The idea of having the proceedings and papers of each section reprinted from the Journal of the Association on fine paper, with cloth binding, would probably entail greater expense on each individual member in a small section like ours than in a large one. It is, however, well worthy the attention of the members. And just here it may not be out of place to advert briefly to a disadvantage under which our Section labors. Nearly all its members are engaged in the active practice of medicine or surgery. The work which they do here and the time which they bestow contribute in no way to their knowledge of the particular department of medical science or art to which they devote themselves, and on which they depend for a livelihood. They know that in many other sections papers are being read which would convey to them information of inestimable value, and discussions participated in by men to whom their ears are burning to listen. They are with us, therefore, at no trifling personal self-sacrifice. Hence it can never be otherwise but that attendance on our sessions should be limited in members and fluctuating in character. Would it not be well to accept this fact and govern ourselves accordingly?

This thought has been in the minds of the officers in arranging the programme of the present meeting, certain available periods having had no session assigned them in order to allow the opportunity for attendance on those of other sections.

The question of the pollution of streams and other sources of water supply on this continent is rapidly assuming the greatest gravity. It is curious to notice how in this, as in moral and social problems, we are gradually making the discovery that America is, after all, not very different from the rest of the world, and that measures which have been found necessary in the older civilizations for the maintenance of public peace, the fostering of morality, and the preservation of the public health must also eventually be resorted to by us.

The first lesson which we learned on this question was that

of the possibility of the pollution of wells, and a hard lesson it was and still is to drive into the head of the farmer or villager who looks upon his well or spring or pump as a sacred legacy from his ancestors, hallowed by their use for generations, and to doubt the purity of which is to cast a reflection on the character of those who have gone before. The "old oaken bucket," notwithstanding the admirable parody on it by a well-known sanitarian, still holds a place in the affections of the people which wins for it the plaudits of an enthusiastic public, wherever the "Old Homestead" is put upon the stage. This idol, however, is rapidly being shattered. Next in order, we have been compelled to abandon our faith in the pure mountain stream that comes sparkling and dancing down the hillsides. Plymouth gave the death blow to this article of belief, but it dies hard. Then the cherished doctrine of the self-purification of streams in the course of a flow of twelve miles was reluctantly abandoned. Finally, a careful study of the statistics of our Lake cities by Dr. Peter H. Bryce, Secretary of the Provincial Board of Health of Ontario, recently presented before the State Sanitary Convention of Pennsylvania as the Annual Address before the Board, shows conclusively that large bodies of fresh water, however pure by nature, cannot be depended upon to neutralize the germs of disease poured into them by large populations. All of these disillusion have in turn aroused public attention to the necessity of warding off the corresponding danger, and have thus resulted in the formulation of legislative enactments of more or less wisdom and efficiency, generally more wise and efficient as their authors have profited by the experience of foreign countries in their construction.

In other words, physical nature, like human nature, is the same all the world over, and it only requires the presence of the necessary amount of human nature sufficiently condensed to develop invariably certain conditions in physical nature which must be heeded. We are a great people, and America is a great country, but even the great American eagle must bow in humility before the universal laws of human nature. The problems which are now confronting us in consequence of our rapidly increasing population have forced themselves for many years on the attention of thoughtful minds in England and on the continent of Europe.

It would be, then, almost folly not to avail ourselves of the labor and thought which they have expended upon them. As is well known, the result of such study in Great Britain has led to the establishment of a body known as the Rivers Conservancy Commission, whose duty is to investigate the reality and extent of this alleged evil of pollution of water supplies and devise means for its remedy. I feel convinced that such a step is rapidly becoming a necessity in this country. To marshal statistics before this Section to convince its members that throughout the entire nation, in villages as well as in cities, thousands of avoidable deaths are taking place every year in consequence of the pollution of public water supplies, or that the ratio of comparative purity of water supplies and comparative rate of mortality is almost a constant one, would, I feel, be a work of supererogation. I take that entirely for granted, and do not anticipate the expression of a doubt on the subject. The questions naturally suggest themselves then, "What are the several State governments doing to protect the purity of public water supplies?" and "To what extent are the State governments capable of preventing the pollution of streams, many of which traverse a large number of States?" This last question is to be considered on its moral as well as physical side. For while a State government may, in the abstract, possess the power to prevent the contamination of a stream passing from its territory into that of another State, in the concrete it may find itself quite unable to refute the logic of those who are interested financially in maintaining contamination. I think it will be held to be sound law that no State has a right to pollute or poison a source of water supply passing into another State any more than an individual has to pollute or poison his neighbor's well. If this be admitted, then, if State governments fail to appreciate their responsibilities in this particular, aggrieved States will have no resource but to petition Congress to enact such legislation as will take the matter out of the hands of the State governments and place it as a question of national hygiene in those of the National Government. In order to furnish data for the commencement of the investigation of this problem, I some few months since formulated a brief series of questions addressed to the Secretaries of State Boards of Health as follows :

Secretary State Board of Health of——— :

DEAR DOCTOR : Shall I be trespassing too much upon your valuable time if I request brief replies to the following interrogatories :

1. Has your State any laws prohibiting the pollution of streams or other inland waters ?

2. Has your Board adopted any regulation upon this subject ?

3. If either or both, kindly send me copies of the same if procurable.

4. Do any streams enter or traverse your State which have become seriously polluted in other States ?

5. Do any streams which have become seriously polluted in ———States enter or traverse other States ?

6. In your opinion, is it wise or politic to attempt to preserve the purity of streams, or should we not rather allow them to be used as sewers, and seek our supplies of drinking water from other sources ?

7. If you favor the former alternative, do you consider it expedient, in view of the fact that so many of our streams pass from one State into another, to petition Congress for the passage of a law forbidding the pollution of streams throughout the entire country, and establishing a Rivers Conservancy Commission for the purpose of enforcing such law ?

Awaiting a reply to the above inquiries at your convenience, I remain

Yours very respectfully,

BENJAMIN LEE,

Secretary State Board of Health of Pennsylvania.

1532 PINE STREET, January 18, 1892.

In reply to question No. 1, " Has your State any laws prohibiting the pollution of streams or other inland waters ? " The following-named States and provinces possess legislative enactments for the preservation of the purity of water supplies and streams or other collections of water : Kentucky, Delaware, Wisconsin, New York, Minnesota, Maryland, West Virginia, New Jersey, Ontario, Can., Quebec, Can., Illinois. The following-named State possesses special legislative enactments for protecting the purity of the water supplies of certain cities : Pennsylvania. In the following-named States the legislatures have made it the duty of the State Board of Health to protect the purity of the water supplies, and conferred upon them powers more or less complete for performing this duty : Delaware, New York, Ontario, Can., Quebec, Can., Minnesota.

In reply to question No. 2, "Has your Board adopted any regulation upon this subject?" In the following-named States the State Board of Health has, either by regulation, resolution, or executive action, attempted to protect the purity of inland waters: Massachusetts, Connecticut, West Virginia, New York, Delaware, Kentucky, Maryland, Wisconsin, Minnesota, Ontario, Can., New Jersey, Illinois, California, Rhode Island, Quebec, Can.

In reply to question No. 6, "Is it wise or politic to attempt to preserve the purity of streams, or should we not rather allow them to be used as sewers and seek our supplies of drinking water from other sources?" The Secretaries of the following-named States pronounced unequivocally in favor of making every effort to prevent the pollution of streams and, as far as possible, to keep all impurities from entering them: Minnesota, Wisconsin, Vermont, Kentucky, Delaware, New York, Province of Ontario, Missouri, North Carolina, Maryland. The Secretaries of the following-named Boards doubt the feasibility or possibility of preventing pollution to a very considerable extent, and therefore declare in favor of permitting streams to be used freely and unrestrictedly as sewers, and looking elsewhere for drinking-water: Alabama, Florida, Louisiana, Oklahoma Territory, Rhode Island, South Carolina. The Secretaries of the following-named State Boards considered that the question could not be answered categorically, but that each case of pollution or threatened pollution should be decided upon its merits as it arises: Massachusetts, California, Illinois, Connecticut, Michigan, West Virginia, New Jersey.

In reply to question No. 7, "If you favor the former alternative, do you consider it expedient, in view of the fact that so many of our streams pass from one State into another, to petition Congress for the passage of a law forbidding the pollution of streams throughout the entire country, and establishing a Rivers Conservancy Commission for the purpose of enforcing such a law?" The Secretaries of the following State Boards express themselves as in favor of national legislation forbidding the pollution of streams and establishing a Rivers Conservancy Commission for the purpose of enforcing such legislation: Louisiana, Delaware, Ontario, Missouri, Mary-

land, South Carolina, Illinois, Connecticut, Michigan, West Virginia, Wisconsin, Vermont, Kentucky. The Secretaries of the following State Boards are decidedly opposed to invoking the authority of Congress, believing that the separate States are fully capable of dealing with this problem : Rhode Island, Florida, Massachusetts, New Jersey, Minnesota.

Dr. N. D. Baker, of West Virginia, says : " I would join in earnestly urging the above action upon Congress."

Dr. F. W. Reilly, of Illinois, says : " The proposition to secure a Rivers Conservancy Commission, with power, authority, and means to determine individual cases on the basis of individual conditions, has my hearty endorsement."

Dr. C. W. Chancellor, of Maryland, says : " I am decidedly in favor of a Rivers Conservancy Commission, with strong laws to prevent pollution of any waterway. The general government will be forced at an early period to enact a law to protect the water supply of Washington City, which is already greatly polluted by the States of West Virginia, Virginia, and Maryland."

Dr. R. C. Atkinson, of Missouri, says : " I heartily approve of such a measure."

Dr. P. H. Bryce, of Toronto, says : " I think the suggestion that the question of the pollution of streams be taken up as a congressional matter should be approved of and urged by all interested in State or international sanitation."

Mr. E. B. Frazer, of Delaware, says : " I heartily approve of the above. Protect the streams ; keep them as the Almighty made them."

An Act to Prevent the Pollution of Rivers and Sources of Water Supply, Chapter 225, Laws of 1885. To be Enacted by the Legislature of the State of Minnesota.

SECTION 1. No sewage, drainage, or refuse or polluting matter of such kind as either by itself or in connection with other matter will corrupt or impair the quality of the water of any spring, well, pond, lake, stream, or river for domestic use, or render it injurious to health, and no human or animal excrement shall be placed in or discharged into, or placed or deposited upon the ice of any pond, lake, stream, or river, used as a source of water supply by any town, village, or city,

nor shall any such sewage, drainage, refuse, or polluting matter or excrement be placed upon the banks of any such pond, lake, stream, or river within five miles above the point where such supply is taken, or into any feeders on the banks thereof of any such pond, lake, stream, or river.

SEC. 2. The State Board of Health shall have the general supervision of all springs, wells, ponds, lakes, streams, or rivers used by any town, village, or city as a source of water supply with reference to their purity, together with the waters feeding the same, and shall examine the same from time to time, and inquire what, if any, pollution exist and their causes. In case of the violation of any of the provisions of Section 1 of this act, said Board may appoint a time and place for hearing parties to be affected, and shall give due notice thereof, as hereinafter provided, to such parties, and after such hearing, if in its judgment the public health requires it, may order any person, or corporation, or municipal corporation to desist from the acts causing such pollution, or to cleanse or purify the polluting substance, in such a manner and to such a degree as shall be directed by said Board, before being cast or allowed to flow into the waters thereby polluted, or placed or deposited upon the ice or banks of any of the bodies of water in the first section of this act mentioned. Upon the application of the proper officers of any town, village, or city, or of not less than — legal voters of any such town, village, or city, to said Board, alleging the pollution of water supply of any such town, village, or city by the violation of any of the provisions of this act, said Board shall investigate the alleged pollution, and shall appoint a time and place when and where it will hear and examine the matter, and shall give notice of such hearing and examination to the complainant, and also to the person, or corporation, or municipal corporation alleged to have caused such pollution, and such notice shall be served not less than ten (10) days prior to the time so appointed, and shall be served in the same manner that now is or hereafter may be by law provided for the service of a summons in a civil action in the district court. Said Board, if in its judgment any of the provisions of this act have been violated, shall issue the order or orders already mentioned in this section.

SEC. 3. The district court or the judge thereof may, upon the complaint of said Board, or of the proper authorities of any town, city, or village, whose sources of water supply shall be so polluted, issue an injunction to enforce the orders of said Board.

SEC. 4. Such orders of the State Board shall be served upon the persons, corporations, or municipal corporations found to have violated any of the provisions of this act, and any party aggrieved thereby shall have the right to appeal to the district court of the county in which is situate the town, village, or city whose source of water supply is found to have been polluted, and such aggrieved party shall have the right to a trial by jury in the same manner as in a civil action in said court. During the pendency of the appeal, the pollution against which the order has been issued shall not be continued contrary to the order of the State Board, and upon the violation of the order the appeal shall be forthwith dismissed.

SEC. 5. Any person, corporation, or municipal corporation desiring to appeal from any such order of the State Board shall, within thirty (30) days after the service upon him or it of a copy of such order, file in the office of the clerk of the district court of the proper county, a notice of such appeal, together with a bond in the sum of not less than two thousand (2000) dollars, with two (2) sureties, to be approved by the judge of said court, conditional for the prosecution of such appeal to judgment, and for the payment of all the costs and disbursements that may be adjudged against him or it therein, and shall within three (3) days after such filing serve a copy of such notice and bond upon the Secretary of the Board; and said Secretary shall, within ten (10) days thereafter, deliver such copies so served upon him to the mayor or other chief executive officer of any such city, village, or town, whose source of water supply has been found to have been so polluted.

SEC. 6. Water boards, water commissioners, water companies, and the proper officers of any city, village, or town making use, as a source of water supply, of any well, spring, pond, lake, stream, river, reservoir or well within, and partly within, this State, and distributing the waters thereof for public, domestic and general uses, shall, from time to time,

and whenever required by said Board, make returns to said Board upon blanks to be furnished by it, of such matters as may be required by said Board and called for by such blanks, and any such water board, water commissioners, water company, or officers of any city, village, or town who shall for the space of thirty (30) days after being furnished with such blanks, fail or neglect to make any such report so required, shall, for each and every such neglect or failure, forfeit and pay the sum of one hundred (100) dollars, for the use of the local Board of Health, or the proper officers acting as such of the city, town, or village where such delinquent has its principal office. Said State Board shall, in the name of the State, prosecute in the district court of the proper county an action for the recovery of the penalty or forfeit therein imposed.

SEC. 7. This act shall take effect and be in force from and after its passage.

Approved March 7th, 1885.

In coming to a decision on this really momentous question, it is in the highest degree desirable that we should allow hygiene considerations and the interests of human life alone to have weight. Shall we permit local jealousies or inherited prejudices or questions of political organization to influence us? Are not thinking men who reside in large cities beginning to wake up to the fact that so far as municipal government is concerned we have been grasping at shadow of the liberty only to lose the substance? Shall we allow the bogey of centralization of power to deter us from advocating a measure which may prove the salvation of thousands of lives?

IMPURITIES IN ICE.

A GOOD many of the bacteria which are found in all natural surface waters are expelled or killed when the water freezes, but as many as ten per cent, and often more, may remain alive. A large number of studies on this subject have shown that the bubbly and snowy ice is apt to contain many more bacteria than the clear ice does. These bacteria in ice have, as a rule, no influence whatsoever upon the health of the ice consumer, if the ice has been formed on bodies of

water which are clear and pure. But ice which is formed on sewage-polluted or otherwise filthy water may contain disease-producing bacteria, and hence be very dangerous for domestic use.

It has thus come to be firmly established as a primary principle in sanitary science that sewage-polluted water should not be used for domestic purposes, either in its natural state or in its condition as ice. No water which is unfit to drink as water is fit to use for a similar purpose as ice. Its coldness may benumb the sense of taste, so that no warning of its nature comes to the consumer. Its intrinsic clearness and beauty may put him off his guard, but all ice cut from sewage-polluted waters is dangerous, and should by law be kept from the domestic market.

Ice manufactured from distilled water should, it would seem, be germ free. In fact, however, it is extremely difficult to prepare absolutely germ-free water on the large scale, and almost impossible to keep it so if once prepared, because every exposure to the air, or contact with utensils in common use, brings to it varying and often large numbers of germs which can live and grow in the water. But these small numbers of common bacteria are not of the slightest importance to the salubrity of the water.

Every one should understand that of all the myriads of bacteria about us in earth and air and water, the great majority are harmless. With very few exceptions, the bacteria which can do us harm are those, and those alone, which come from the bodies of men and animals afflicted with disease. So far as water is concerned—and the same applies to ice—it is only sewage pollution or stagnant filth which we have to fear and shun. Good, pure, uncontaminated water, and ice made from such water either by nature or by man, are entirely wholesome, and they are not made more wholesome by distillation or other purifying procedure—they are not more wholesome when germ free.

So in the manufacture of ice, if the water which is used be contaminated and impure, the preliminary distillation is of primary importance for the salubrity of the ice; but if the water be pure, the distillation is only valuable for the technical purpose of removing the dissolved air.

In point of fact, most of the artificial ice which the writer has examined—and there have been many and abundant samples from various sources collected, and for a period of many months—do contain bacteria in varying numbers. The preliminary distillation, if carefully done, destroys any disease-producing germ forms which might be present in the water used. But a certain number of the more hardy harmless forms may be carried bodily with the steam into the condensers.

In most of the ice-manufactories the distilled water is filtered through charcoal before it is run into the freezing-cans, for the purpose of removing certain organic compounds which have come in the process of distillation. But these charcoal beds afford breeding-places for such germs as may have escaped the ordeal of the heat. The writer has repeatedly found that while the distilled water before passing on to the filter beds was very nearly germ free, the number was increased a thousandfold on leaving them.

So far as the salubrity of the natural as compared with the artificial ice is concerned, we may rest assured that as regards bacteria, one is just as wholesome as the other, provided the water used is pure. If the water is impure from sewage or other unwholesome thing, then the natural ice is never fit for domestic use. If water is impure, the processes of artificial ice-making, if carefully performed, are capable of furnishing even from it a product which is harmless and wholesome, whether it be absolutely germ free or not; for absolute freedom from germs—if these are not disease-producing forms—is neither necessary nor especially desirable. *It is not bacteria, but disease-producing bacteria, which make of practical significance the invisible flora of either water or ice.*

The examinations of artificial ice made from the distilled Croton water have shown that when it does contain a few bacteria these are not of many different species, as is the case with the undistilled Croton, but they are almost all of one single species, and this a hardy, harmless form which multiplies readily and rapidly in pure water.

Innumerable analyses have shown that water does not purge itself wholly in the act of freezing, as was formerly believed, from disease germs which may have come into it with

human waste. This has been specifically and repeatedly shown to be true for that most dreaded and fatal sewage germ, the bacillus of typhoid-fever.

The process of oxidation and sedimentation which aforetime was demonstrated by most exact chemical analyses to be capable of freeing water in lakes and running streams from organic compounds abundant in sewage, is still urged by belated scientists and frantic tradesmen here and there in justification of the use of ice cut on sewage-polluted waters. But these facts regarding the organic products of decomposition have very little bearing, in the new light, upon the actual producers of disease—the germs themselves. For these are not subject to the same purifying agencies, are not demonstrable by chemical methods, and are not removed from sewage-polluted lakes and streams within the limits which chemical experiences have led us to regard as safe.

Sedimentation does remove many harmful germs from sewage-polluted waters. Dilution does diminish the chances to incur disease for every consumer. Many individuals are, at favored times, practically invulnerable to the incursions of these tiny foes. But, after all, it is safe to say that in thickly inhabited regions sewage-polluted water is not fit for men to drink without purification, no matter how fast and far the river runs, or how wide the lake into which the sewage drains. With the size of the lake and the volume of the river, the chances of harm decreases, of course, but they stay chances still where none need to be. As our country becomes more thickly settled and our cities larger, the problems involved in pure water and ice supplies are becoming more and more urgent and difficult.

The manufacture of ice and its marketing at prices which in many regions easily compete with those of the natural product have simplified this phase of the water question in the most marked way. Other things being equal, whether the householder decides to use the natural or the artificial ice will depend much upon the climate of his home and the market price of the ice. The natural ice is just as good as the artificial when it comes from pure sources. It is claimed by some that the natural ice melts more slowly than the artificial, and is in this way, other things being equal, cheaper.

But similar claims are made for the artificial ice. The writer has tested the relative rapidity of melting of the natural and the artificial ice in New York under the greatest variety of conditions ; in small pieces and in large, in the dark, in the light, in diffused light and in the sunshine, in hot places and in cool, and can find no absolute constant difference in the rapidity of melting. One seems to be just about as durable as the other.—From "*Ice and Ice-making*," by T. Mitchell Prudden, in *Harper's Magazine* for August.

THOSE "ERRORS IN VENTILATION"—A REPLY.

By R. HARVEY REED, M.D. (University of Pennsylvania), of Mansfield, O., Professor of the Theory and Practice of Surgery and Clinical Surgery, Ohio Medical University ; Member of the Committee on School Hygiene, American Medical Association ; Member of Committee on Car Sanitation, American Public Health Association ; Health Officer, etc.

THE SANITARIAN of April, 1892, contains an article entitled "Errors in Ventilation," by William Henry Thayer, M.D., of Brooklyn, N. Y., in which the Doctor says he was much surprised to read in an article on "Ventilation," contributed by myself, to the *Annals of Hygiene*, in October, 1890, the following :

"The old method of putting a register at the top of rooms, for the escape of foul air, is neither economical nor scientific, and it wastes the heat, cools off the room, and leaves the cold, foul air as its legacy."

I can assure the readers of THE SANITARIAN that Dr. Thayer was not any *more* surprised at the above assertion than *I* was, to find a physician who pretends to be a modern sanitarian, and who for a moment would attempt to deny the truth contained in the above paragraph.

Dr. Thayer, in his article, also refers to the paper I read before the Ninth International Medical Congress, on the "Ventilation of Railway Coaches," in which I advocated the placing of foul air conduits at the level of the floor ; and in his comments he says : "Had this writer [meaning myself] been alone in holding these views it might not have been necessary to undertake publicly their correction. But there

are many evidences that they have a certain prevalence, and are producing practical results which are *injurious to health*."

I am not surprised that these views are rapidly gaining prevalence and producing practical results, because they are based upon scientific facts, and are backed by hundreds of practical demonstrations, which I defy the Doctor or any one else to disprove, and, moreover, challenge him to a fair and square contest to either disprove what I have said, or to prove what he has said, especially in the latter part of his sentence (which does surprise me, and especially so, to find a medical man who pretends to be a sanitarian, at this day and age to make such an assertion), that the removal of foul air at the floor is injurious to health; and I challenge him to prove this wild and untenable assertion by fair, practical demonstrations, while I stand ready and willing to prove that it does *not* injure the health.

The Doctor goes on, in this same article, to take the Superintendent of the Public Schools in Brooklyn to task because he has studied up the latest investigations on heating and ventilation, and has had the manhood to cast away the old antiquated English ideas of ventilating at the top of the room, and adopt the American of modern scientific principles of ventilating a room at the floor.

I am glad to see this superintendent reduce the grade of a scholar for not knowing any better than to advocate ventilating a room at the ceiling instead of at the floor; and it shows that Brooklyn has secured the services of a superintendent who is up to the times in his education regarding the heating and ventilation of buildings.

Dr. Thayer then enters elaborately into the discussion of the Leeds lectures on "Ventilation" in 1868, which, although they are only a quarter of a century old, yet they embrace many facts and some fiction, with much more facts than fiction, and were very valuable lectures, and were very much in advance of the modern theories on ventilation at that time, and have done a great deal of good.

Every student who has studied this question of ventilation to any extent is well aware that carbonic acid is heavier than air, and any *school-boy* knows that, by the law of diffusion of gases, carbonic acid will readily mingle with air, and even

hydrogen, which is the lightest gas known ; and we also know that where three candles of three different heights are placed in a tight box and all lighted at the same time, that the shortest candle will go out first, the next longest second, and the tallest last, owing to the fact that the carbonic acid gradually accumulates at the bottom of the tight box, and as it fills the box, extinguishes the candles one after another ; but while this is a fact, we cannot depend on this principle entirely to help us out in practical ventilation, for the reason that not only the law of the diffusion of gases intermingles carbonic acid with air, but also the moving of people or scholars in the room, as well as the diversified currents of heated air passing through the room from whatever kind of heating and ventilating apparatus, tends to diffuse the carbonic acid until it is almost equally distributed throughout all parts of the room, under any system of heating and ventilation.

In proof of this, I beg leave to refer the Doctor to the series of experiments I conducted during the winter of 1890 and spring of 1891, on "Original Investigations on the Heating and Ventilation of School Buildings," a copy of which I have sent him, in hopes that he will study the question up, and familiarize himself with the existing facts before he proceeds to teach the public how to correct "Errors in Ventilation," which, judging from his articles on this subject, reminds me very much of the blind attempting to lead the blind.

In replying to the Doctor's articles, I cannot do better than to give an abstract from that report, giving the condensed results of those "Original Investigations," but before doing so, I offer to the Doctor or to any one else who desires to accept the challenge, that I am ready to repeat those experiments, and again prove what I have said in the report, and challenge him or any one else to meet me half way in the repetition of the experiments, and if what I have claimed to have discovered and represented by those investigations is not true, I am willing to pay the expense connected with them ; but if they are true, the Doctor, or any one else who accepts the challenge, to pay the expenses of the same.

In order that the readers of this article may understand the circumstances under which these investigations were made, I beg leave to say that at the meeting of the American Medical

Association, held at Newport, R. I., two years ago, a special committee was appointed by the Section in State Medicine on "school hygiene," consisting of Dr. D. F. Lincoln, Geneva, N. Y. ; Dr. J. A. Schenck, Topeka, Kan. ; Dr. George H. Rohé, Baltimore, Md. ; Dr. J. G. Pinkham, Lynn, Mass. ; and the author.

After some correspondence, it was decided to divide the work of this committee, and as a result I was assigned the "original investigations on the heating and ventilation of school buildings," from which report I abstract as follows :

"After no small amount of research among the multiplicity of reports of the numerous air analyses of the different school-rooms in the various cities, I found them all practically valueless, so far as making anything like a systematic comparison of results was concerned, of even an approximately scientific character.

"By this I mean to say that they all lacked the details regarding those numerous modifying elements which of necessity surround each individual room ; such as the temperature *outside* of the school building ; the temperature *inside* of the same at the level of the floor, mouth and ceiling, both in the front and at the rear of the room, the same observations regarding the humidity, as well as that of the carbon dioxide ; the number of scholars present ; the size of the room ; the method of heating the same, as well as the system of ventilation employed ; the amount of fresh air supplied, and the quantity of foul air discharged from a room, in a given time, together with the barometric pressure—each one of which is an important arc of a complete circle ; and of necessity must all be considered together, and due credit given each one, in order to obtain anything like definite or reliable information regarding any special method or system of heating and ventilating a given room or a certain building.

"With a view of obtaining the most reliable results possible, I devised a blank chart, which I thought would, as near as possible, contain all these more important factors.

"I then determined to pursue the same line of investigation, of different school-rooms in the same building ; and different buildings in the same city ; and different cities in the same State ; among which I designed to embrace as large a variety of the various methods of heating and ventilation as we practically could, and to repeat our examinations sufficiently often on the same systems, when at all practical, to enable us to arrive at some definite conclusions, regarding any special method of heating and ventilation, if such were at all possible.

"As a result, I prepared a chart which embraces the following details :

- "1. Date and time of day inspection was made.
- "2. Name of school building.
- "3. Name of school-room.
- "4. Number of pupils present.
- "5. Number of cubic feet of air contained in the room.
- "6. Temperature outside of the building.
- "7. Humidity outside of the building.
- "8. Barometric pressure in inches.
- "9. State or condition of the weather.
- "10. Kind of heating apparatus in use.
- "11. System of ventilation employed.
- "12. Number of cubic feet of fresh air supplied per hour.
- "13. Number of cubic feet of foul air discharged per hour.
- "14. Temperature at the front of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.
- "15. Temperature at the rear of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.
- "16. Humidity at the front of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.
- "17. Humidity at the rear of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.
- "18. The amount of carbon dioxide found in the air of the city per 10,000 parts.
- "19. The amount of carbon dioxide per 10,000 parts found in the air in the front of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.
- "20. The amount of carbon dioxide per 10,000 parts found in the air at the rear of the room. *a*, at the floor ; *b*, at the mouth ; *c*, at the ceiling.

BACTERIOLOGICAL INVESTIGATION.

"21. Germs found in the air of school-rooms when occupied. *a*, near the floor at the point of entrance of the fresh air ; *b*, near the floor at point of exit of foul air.

"22. Miscellaneous observations.

"Having completed the general plan of investigations, I then determined to investigate, as far as practicable, the following methods of heating and ventilating school-rooms :

"1. School-rooms warmed by common stoves, with and without any provisions for ventilation, other than windows, doors and transoms.

"2. School-rooms warmed by small furnaces placed in each room, which heated fresh air received from the outside, and delivered it to the room, with and without provisions for the escape of the foul air, other than that furnished by the doors, windows, and transoms.

" 3. School-rooms warmed by furnaces or heaters, and ventilated at the top.

" 4. School-rooms warmed by furnaces or heaters, and ventilated at the floor.

" 5. School-rooms warmed by furnaces or heaters, and ventilated at the floor and ceiling both.

" 6. School-rooms warmed by direct steam and ventilated by doors, transoms, and windows.

" 7. School-rooms warmed by indirect steam and only ventilated by foul-air ducts, windows, and transoms.

" 8. School-rooms warmed by both direct and indirect steam and ventilated by foul-air shafts, windows, and transoms.

" 9. A school-room warmed by direct steam, and ventilated by an open fireplace and a top ventilator.

" 10. School-rooms warmed by a furnace which delivers the hot air to the room at the floor, and which room is also supplied with cold fresh air at the floor, and is provided with means for removal of foul air at the top of the room.

" 11. School-rooms warmed by an air-warmer, which supplies the warm air at the floor, and removes the foul air at the floor without the aid of open doors, windows, or transoms.

" After having completed the outline of these proposed investigations, I next found it quite a difficult task to secure the services of a competent chemist, who was willing and able to undertake the work I had laid out. But after corresponding with the chemists of several cities, I obtained the services of Professor Lewis Schmidt, B.Sc. (Massachusetts Institute of Technology), of Cincinnati, O., to undertake the chemical investigations, together with the humidity, temperature, etc., which he conducted throughout the entire investigation for me, in a perfectly satisfactory manner.

" The original report contemplated the examinations for carbon monoxide (C O), but as this product is seldom found in the air, except when it has been passed for a considerable period, of at least two hours, over red-hot iron plates, we decided to omit this part of the report, and also the examination for organic matter, owing to the impractical character of the former, and the unreliable methods of determining with any degree of scientific accuracy the latter.

" I next selected Cleveland, Mansfield, Columbus, and Cincinnati, O., for the cities in which I would conduct the proposed investigations; and to which I gave my personal attention, in Mansfield and Cleveland, and in part my personal attention in Columbus and Cincinnati, but least so in the latter, having only visited a few of the school-rooms in that city, owing to unavoidable circumstances, which prevented my presence during the investigations there.

" My instructions were to make investigations of each room,

as near as possible under the conditions it was usually kept in, and to be very careful to leave nothing undone that would enable us to obtain the highest degree of accuracy possible, regardless of the system of heating and ventilation we were investigating, as we were seeking actual facts, for scientific purposes, let them reveal what they would.

"In carrying out these investigations, we have made altogether 224 determinations of the carbon dioxide, not including the examinations of the outside air; 233 determinations of the humidity, not including those made outside of the buildings; and 232 examinations of the temperature exclusive of those made outside of the buildings; saying nothing of the numerous other auxiliary observations of surrounding conditions.

"These examinations were made in 39 different school-rooms, of 23 different school buildings, in 4 different cities, and include 10 different systems of heating and ventilation.

"By referring to the itemized charts, you will observe that we have examined the air in 10 rooms in Mansfield, 7 rooms in Cleveland, 4 rooms in Columbus, and 18 rooms in Cincinnati: which embraced 11 rooms heated by the so-called Grossius system; 11 rooms warmed by the Smead system; 5 by the Johnson system; 3 by indirect steam; 3 by common stoves; 2 by direct steam; 1 each by the Patric and Miller furnaces; direct steam with an open grate, and direct and indirect steam. You will also observe that we have made 6 examinations each, of the temperature, humidity, and carbonic dioxide in each room—viz., two each at the floor, one each in the front and rear of the room; two at the mouth, one each in the front and rear of the room; and two at the ceiling, one each at the front and rear of the room; besides all the supplementary investigations we have associated with these three primary determinations.

"In making these investigations we used tested Fahr. thermometers for obtaining the temperature; while a carefully constructed hygrometer was used for determining the amount of moisture contained in the air, the scale of which was so constructed as to represent complete saturation at 100 and complete dryness at 0. For determining the velocity of the currents of air, we used a delicately constructed anemometer, which would register the velocity of any current of air, that was moving over 30 feet a minute. By means of glass rods, rubber hose and a small bellows, we could obtain air from any desired part of the room, a given quantity of which was pumped into clean dry bottles, of a known capacity, which were carefully corked and labeled, and taken to the laboratory for the determinations of the CO_2 which was obtained by neutralizing the carbon dioxide with a barium solution of a

known quantity and strength, and calculating the amount of $C O_2$ per 10,000 parts of air from that, in the usual manner, which is familiar to all practical chemists.

"By referring to these itemized charts, one of which has been prepared for each city, in which examinations of the air was made, you will observe that with the exception of the Smead system, either doors, windows and transoms, or all, were relied on for ventilating and regulating the temperature of the room.

"From these *itemized charts* we have compiled a number of tables which embrace :

"1. The highest and lowest temperature, and the highest and lowest humidity, outside of the building examined, and also the average temperature and humidity of the air of the city, which we have shown : *a*, as found in each city ; *b*, as found associated with each system of heating and ventilation ; *c*, the general average of each.

TABLE I.

SHOWING THE HIGHEST AND LOWEST TEMPERATURE AND THE HIGHEST AND LOWEST HUMIDITY OUTSIDE OF THE BUILDINGS, TOGETHER WITH THE AVERAGE OF THE SAME, BY CITIES.

LOCATION.		Temperature outside of the Building. Fah.	Humidity outside of the Building, based on 100 for complete saturation.	Total number of exam- inations made.
Mansfield, Ohio.....	Highest	38.0	89.8	....
	Lowest.....	27.5	46.3	....
	Average....	32.0	71.1	10
Cleveland, Ohio.....	Highest ...	55.2	89.5	....
	Lowest.....	33.0	35.4	....
	Average....	45.3	49.0	7
Columbus, Ohio.....	Highest ...	53.0	59.4	....
	Lowest.....	44.5	42.3	....
	Average....	49.5	50.8	4
Cincinnati, Ohio.....	Highest ...	69.0	100.0	....
	Lowest	33.5	48.0	....
	Average....	52.0	75.3	18
Grand average for the four cities above named out of 39 examina- tions	Highest	52.0	75.3	Total 39
	Lowest.....	32.0	49.0	....
	Average....	44.9	61.5	....

"2. The highest and lowest temperature, and the highest and lowest humidity inside of the school-rooms examined,

together with the average of the same : *a*, as found in each city ; *b*, as found associated with each system of heating and ventilation ; *c*, the general average of each.

TABLE II.

SHOWING THE HIGHEST AND LOWEST TEMPERATURE AND THE HIGHEST AND LOWEST HUMIDITY OUTSIDE OF THE BUILDINGS, TOGETHER WITH THE AVERAGE OF THE SAME BY SYSTEMS.

		Temperature outside of the Building. Fah.	Humidity outside of the Building, based on 100 for complete saturation.	Total number of exam- inations made.
Grossius System (with open windows, etc.).....	Highest	68.1	95.2	....
	Lowest.	29.5	46.3	....
	Average	43.1	80.7	11
Smead System (with no open doors, windows or transoms).....	Highest	69.0	100.0	....
	Lowest.	32.0	42.3	....
	Average	52.7	64.9	11
Johnston System (with open windows, etc.).....	Highest	62.0	66.9	....
	Lowest.	41.0	48.0	....
	Average	49.7	59.3	5
Indirect Steam (with open windows, etc.).....	Highest	54.5	40.1	....
	Lowest.	41.5	35.4	....
	Average	48.0	37.5	3
Common Stove (with open windows, etc.).....	Highest	55.2	62.4	....
	Lowest.	27.5	47.9	....
	Average	37.4	53.4	3
Direct Steam (with open windows, etc.).....	Highest	41.0	89.5	....
	Lowest.	33.0	48.8	....
	Average	37.0	69.1	2
Patric Furnace (with open windows, etc.).....	Highest ....	....	....	....
	Lowest. ....	....	....	....
	Average	32.1	89.5	1
Miller Furnace (with open windows, etc.).....	Highest ....	....	....	....
	Lowest. ....	....	....	....
	Average	33.5	94.8	1
Direct Steam, with open fire grate (with open windows, etc.).....	Highest ....	....	....	....
	Lowest. ....	....	....	....
	Average	29.0	61.9	1
Direct and Indirect Steam (with open windows, etc.).....	Highest ....	....	....	....
	Lowest. ....	....	....	....
	Average	44.5	56.0	1
				39

"3. The highest and lowest amount of carbon dioxide found per 10,000 parts of air, inside of the school-rooms, and the average of the same : *a*, as found in each city ; *b*, as found associated with each system of heating and ventilation ; *c*, the general average of each.

"4. The average amount of carbon dioxide found per 10,000 parts in each city.

"Before commencing the study of these tables it might be well to remark that 70° Fahr. is a fair average standard to adopt for the temperature of a school-room, and from 40 to 50 for the ideal range of humidity, and while the C O₂ varies in different cities, and on different days in the same city, and at different times in the same day, yet we have found that the general average in the four cities under consideration was 4.853 parts in 10,000 parts of air, which we will be obliged to use in this case for the standard of our comparisons.

"We will readily observe that tables Nos. 1 and 2 are only designed to prepare us for those which are to follow, by giving us the *outside* relations of the same conditions we are about to consider *inside* of the school-rooms.

"By studying table No. 3 you will observe that we have given the *extremes* of temperatures and humidities, as well as the average temperatures and humidities found in the four cities, *without* regard to the system of heating and ventilation which produced them ; while table No. 4 considers the same conditions *with* reference to the systems of heating and ventilation that produced these results ; while tables Nos. 5 and 6 show the determination of carbon dioxide, in the same manner as described for the temperature in tables Nos. 3 and 4.

"The limited time and space allotted to this paper will not permit me to enter into a detailed discussion of these numerous tables, which represent a multiplicity of conditions, which modify and change the general results, all of which must be duly considered, in order to arrive at legitimate conclusions.

"For the present, at least, I will have to content myself with giving you an accumulation of data, which I will be obliged to leave for you to study at your leisure ; while I proceed to consider some of the more prominent features of this report.

THE HEATING.

"By examining this report you will observe, that we have examined quite a variety of methods of heating, which has shown a still greater range of temperature, which is especially noticeable between the floor and top of the room ; but when you come to compare the *general average* of the temperatures taken of the different systems, they vary but little at the same point of the different levels, which at the floor, in the front of

the rooms show a range of from 59.5° to 68.8° , and at the mouth in front from 67.0° to 73.8° , and at the ceiling in front from 68.5° to 85.0° , while there is quite a difference in the range of the average of the ceiling temperatures, there is a much greater difference observed between the floor and ceiling, which ranges from 59.5° to 85.0° , or a difference of 25.5° .

Again, in the average at the rear of the room, the range of temperatures at the floor varies from 60.0° to 74.5° , and at the mouth from 64.0° to 70.2° ; and at the ceiling from 70.7° to 90.0° ; while at the rear of the rooms there was found to be a difference between the lowest average at the floor and the highest average at the ceiling of 30.0° .

"It must be remembered in the study of these results, that with the single exception of the Smead system, the temperature in every instance was modified by open doors, windows, or transoms, and not unfrequently all of them. In the majority of instances the windows were open several inches between the sash and very frequently at the top, and often at the bottom; and which not unfrequently had a strong ally in the form of an open transom or door. These methods of modifying the temperature, to a certain extent accomplished the desired results, so far as the average temperature was concerned, but at a great expense of fuel and waste of heat; and unavoidable exposure of the pupils to cold and changeable draughts of air.

"On the other hand, the Smead system of heating accomplished even better average results, and very much better individual results, at the different levels of the room, than any other system examined, and that, too, without exposing the pupils to cold, changeable draughts of air from open doors, windows, and transoms; saying nothing of the economy of fuel by the prevention of the unnecessary waste of heat through these objectionable openings in the doors, windows, and transoms.

THE HUMIDITY.

"The amount of moisture contained in the air of our school-rooms should not be lost sight of. Warm air that is *too* dry is irritating to the respiratory tract, and is more liable to be charged with dust than air containing a greater amount of moisture; while air that is *overcharged* with moisture at the same temperature creates a sultry, oppressive atmosphere, which will predispose the pupils to 'catching cold' on leaving the school-room.

"By examining these charts and tables you will observe, that, as a rule, the humidity *decreases* in the production of artificial heat, as the temperature *increases*. Yet this condition is very greatly modified by the humidity of the outside atmos-

phere. For example, take a wet, sultry day, when the humidity of the external air is almost at the point of complete saturation, and at the same time the outside *temperature so high*, that but little artificial heat is required, or can be tolerated, the humidity will be found to be exceedingly high in the school-rooms, as a natural result of a combination of circumstances. Again, with the same degree of humidity outside, associated with a *cold raw air* requiring a considerable quantity of artificial heat to make the school-room comfortable, the humidity of the school-room, while somewhat high, will be found much lower than under the former conditions; and at the same time the average temperature will be almost or practically the same.

"You will observe by table No. 4 that the average humidity at the floor in front of the school-rooms, in the various systems varies from 27.5 to 61.2; while at the mouth it ranges from 29.4 to 50.7; and at the ceiling from 19.8 to 49.2. At the rear of the room, it varies at the floor from 25.6 to 50.8, while at the mouth it ranges from 33.3 to 51.5; and at the ceiling from 16.5 to 45.0.

"By these you will observe that even many of the general averages are entirely too low, although few of them are found to be too high. Yet, notwithstanding all this when we examine the itemized charts and study the individual results in isolated cases, you will find still greater variations of the humidity, in different parts of the same room; and especially so when no regular system of circulating and changing the air has been adopted.

"On the other hand, when a regular system of circulating the air has been adopted, it is remarkable how the results are modified regarding the amount of moisture contained in the air at different points in the same room, and even different rooms in the same building.

CARBON DIOXIDE.

"Notwithstanding we have advocates at the present time, who question the injurious effects of even large quantities of carbon dioxide in the air of school-rooms, yet I am not prepared to accept their theories, without more than circumstantial evidence to verify their correctness.

"We must bear in mind that the presence of large quantities of CO_2 does not necessarily make any physical changes in the air that are readily observed by the senses.

"It is true that immense quantities of CO_2 will produce fatal asphyxia, yet it never has been, and no doubt never will be found in such immense quantities as to produce death in school-rooms; but it *is* found in sufficient quantities, in a large majority of school-rooms, as to act as a slow poison from

day to day, during a large portion of the scholars' school life, in proportion to the quantity of C O_2 present, and the corresponding restrictions on the natural supply of fresh air.

"The question of where the carbon dioxide prevails in the largest quantities, in school-rooms, has long since been a mooted question. The old authors, as well as public opinion, placed it at the *top* of the room; and as a result of their belief, advised making provisions for its escape at or near the ceiling. On the other hand, the more recent writers affirmed that it prevailed in the greatest quantities at or near the *floor*, of a given room; and cited you to the fact that it was heavier than air, and of necessity must accumulate at the bottom; and produced as evidence to prove their theory, the old cave story—in which a man can walk with impunity, while his dog would be asphyxiated with carbon dioxide, which they backed with the experiment of the model house, in which a large, medium, and short lighted candle was placed, and the air excluded—when the short candle would go out first, the medium next, and the long candle last.

"But you must remember that in neither of these cases is there any circulation of air, and consequently, barring the law of diffusion of gases, there is nothing to intermix the C O_2 with the sundry strata of air, and modify the natural laws of gravitation. On the other hand, we have quite a different condition of affairs in the school-room, which modify the primary laws of gravity, and which give us entirely different results than the imaginary attributes from which we have heretofore woven our theoretic web of supposed conditions regarding the C O_2 , which, however, in fact did not exist, as you will observe by a careful study of the charts and tables which accompany this report.

"By turning to table No. 6, you will observe that the highest average of C O_2 found associated with any particular system of heating and ventilation, in the *front* of the room at the level of the floor, was 19.127 parts per 10,000, and the lowest average was 8.754; while at the *mouth* the highest average was found to be 17.499 and the lowest at the same level was 9.557; and at the *ceiling* the highest average was found to be 16.493, and the lowest 9.914; which only shows a difference of 1.160 parts in 10,000, between the lowest average at the floor and the lowest average at the ceiling, in favor of the ceiling; and only 2.634 parts between the highest average at the floor, and the highest average at the ceiling, in favor of the floor.

"Again, in the *rear* of the room, the highest average of C O_2 at the floor was 16.671, and the lowest 10.240; while at the mouth it was 16.971 against 10.285, and at the ceiling 18.223, as compared with 9.751; with only a fraction of

.489 difference between the lowest average at the mouth and the lowest average at the ceiling, in favor of the latter; while the difference between the highest average at the ceiling, and the highest average at the floor, was only 1.552 in favor of the ceiling. But go with me, if you please, to table No. 5, and there turn to the grand average of the four cities, taken from 224 determinations, and you will find that there is only a fraction of a difference between the amount of $C O_2$ at any level of the room, either at the rear or front; which grand average shows in the front of the rooms 13.137 at the floor, and 13.785 at the mouth, and 13.064 at the ceiling. While in the rear of the rooms, it shows 14.350 at the floor, 13.651 at the mouth, and 13.912 at the ceiling; or in other words, only the fraction of .075 difference between the floor and the ceiling in the front of the rooms, in favor of the floor; and but .438 difference between the floor and the ceiling at the rear of the rooms, in favor of the former.

"It seems to me that this investigation ought to settle, without a question, the problem regarding the location of the $C O_2$ in the school-rooms of to-day, and especially those which are heated artificially, and to prove beyond a shadow of a doubt, that $C O_2$ is an omnipresent factor, in practically the same relative proportions at all levels of a school-room, whether ventilated at the top, sides, or the bottom, or all.

GENERAL REMARKS.

"The next important question that confronts us, after having obtained all this 'array of facts and figures,' is—how shall we proceed to heat and ventilate our school-rooms in the most sanitary, economical, practical, and scientific manner? In answer to these questions I will say:

"1. That to heat and ventilate our school-rooms in the most *scientific* manner will require a system of heating and ventilation which will avoid the necessity of having either open doors, windows, or transoms, and which will at the same time supply each scholar with not less than 1000 cubic feet of fresh warm air every hour, and which will remove a corresponding quantity of foul air at the same time, without subjecting any scholar in the room to an uncomfortable draught of either cold or overheated air. Sufficient fresh warm air should be supplied to each scholar, at an average temperature of about 70° , and an average humidity ranging from 40 to 50; while the foul air should be removed with sufficient rapidity to prevent an accumulation of $C O_2$ to exceed 10 parts in 10,000 parts of air at any time, or in any part of the room, or a variation of the temperature between the floor and the ceiling to exceed 10° Fahr., or at any level of the same between the front and the rear, or either, to exceed 5° Fahr.

" 2. To accomplish these results in the most *economical* manner will require an air-warmer, with sufficient capacity to heat the required amount of air to the desired temperature without superheating it (for under no circumstances should it be allowed to pass over red-hot iron plates); and which fresh, warm air should be discharged in a gentle current at the floor, and exhausted at the same level at the sides of the room, without the assistance of a top ventilator or the aid of an open door, window or transom. But if top ventilators *are* used at all, they should only be used to cool the room, in the event it became *overheated* from any cause; outside of this they are of no value whatever, except to wantonly waste our heat and fuel, without giving us any advantages in return for their loss.

" 3. I am fully aware of the fact that it is usually a very difficult task to realize, in a practical manner, the theories that fill us with enthusiasm when demonstrated on paper; and further, that there is perhaps *no* system of heating and ventilation in use at the present time, that is capable of carrying out in every particular, under all possible circumstances, the ideal heating and ventilating of the average school-room, yet after years of investigation, and examining scores of different kinds of heating and ventilating apparatus, without 'either fear or favor' to any one, I am thoroughly convinced that there is no system of heating and ventilating at the present time, that will come so *near* fulfilling the requirements of the ideal methods of accomplishing these results, in the most sanitary, economic, practical, and scientific manner, as the so-called Smead system. In making the above assertion, I do so in all candor, and without personal favor, or intentional disparagement to any one, but simply as the legitimate conclusion I have derived from actual facts, obtained from repeated personal and scientific investigations.

CONCLUSION.

" I trust you will pardon the prosy character of this report, which is largely composed of 'facts and figures,' which to obtain has been a tedious, irksome, and an expensive task. Yet if only it serves the purpose of securing a better heated and more liberal supply of God's pure air to the rising generations, who spend (from a hygienic standpoint at least) the very best and most important part of their lives in our public and private schools, I will feel that all my labors have been fully repaid.

" MANSFIELD, O., April 27, 1891."

I have purposely left out the charts and tables excepting two (deemed to be sufficient for this paper), giving the item-

ized results of these investigations, and have confined myself, as the reader will observe, to quoting from my report the results and conclusions obtained from a careful study of the facts ; but any person desiring a copy of the charts and tables, and who is interested enough in this subject to study them, and who will write to me for them, I will send a copy.

When it comes to comparing over 230 analyses, which include over a score of associated circumstances, as I have done in the investigations referred to, with the *single* analysis quoted by Dr. Thayer, made in Brooklyn, on February 21st, by Dr. Bartley, it becomes patent to any unbiased, thinking person that Dr. Bartley's analysis, made without giving the associated circumstances, really proves nothing. It neither proves anything for or against either method of ventilation. On the other hand, the investigations I have made embrace a large variety of heating apparatus, a multiplicity of systems of ventilation, all of which have been placed on the same common level, and measured, so to speak, by the same standard ; the average result of which shows beyond a doubt that the difference between the amount of carbonic acid found at the floor and the amount found at the ceiling in school-rooms, ventilated by either system, is practically so near the same that it is scarcely worth the time it takes to discuss it, so far as the practical distribution of the carbonic acid is concerned.

But when we come to consider the heating problem, then we will find that it will cost from 25 to 33 per cent more to properly heat a room that is ventilated at the top than it does to properly heat a room that is ventilated at the bottom ; and certainly the fuel question is not to be ignored in the settling of this question of heating and ventilating, especially when one system will ventilate equally as well as, if not better, than another, and save from 25 to 33 per cent of fuel in so doing.

I find in the July number of THE SANITARIAN (page 17) that Dr. Thayer still continues to discuss his alleged "Errors in Ventilation," but even up to the present he has failed to conduct a single series of investigations to either prove or disprove the assertions he is so free in making, and which he attempts to back up by old, antiquated quotations that have long since been not only obsolete, but proven false ; and I

challenge him to prove them true by experimental research or practical investigations.

On page 18 he argues that "if the outward passage is in the ceiling, the foul air will not need artificial aid for its escape." I beg leave to inform the Doctor that the *warm air* will not need any artificial aid for *its* escape either, but the pockets of those who contribute to the supply of the fuel may need some artificial aid to replenish their ducats to support the Doctor's flighty theory of heating and ventilating.

On the same page, and following right after, Dr. Thayer goes on to say that "if the place of exit is near the floor, a *motive power* will be needed to carry it off, and the room may be *perfectly ventilated* in that way if the motive power is of adequate force and the supply of pure air admitted is in sufficient quantity."

The very fact that the Doctor has made this wild assertion, is self-evident proof that he has never carefully investigated or studied the question of practical ventilation sufficiently to learn the first principles of the modern or American methods, or he never would have allowed himself to have shown his total lack of education on this important question by such an hallucinated assertion as that is.

If the Doctor will only take the time and trouble to visit me, I will take great pleasure in taking him to numerous buildings in this city, as well as to dozens of buildings in scores of other cities, in this and adjoining States, where the foul air is taken away daily *at the floor*, and fresh air supplied *at the floor*, without the slightest aid, or necessity of aid, from *any sort of motive power*.

On the same page he goes on to confess that, "I do not understand the object of carrying off the foul air at the *level of the floor*," and asks "what is gained over ventilation through the ceiling? It cannot be claimed," he says, "that you save more heat; for if the outward current is strong enough to purify the room, there will be as great a discharge of warm air at the lower openings as if it passed through the ceiling without artificial aid."

Here again the Doctor shows his ignorance of actual facts or investigations of this practical subject. If he will come to my city I will take him to a building heated by steam, and

ventilated by top ventilators, which cost our people \$125,000 ; but by practical experience it has been clearly demonstrated that if they want to heat their building comfortably they must keep the *top ventilators closed*, because if they do not, all the heat they can make with the radiators flies out of the top ventilators like hornets out of a bursted nest, leaving the congregation sitting in a bath of cold air with their feet on the hot steam radiators to enjoy themselves, singing, " There is a land of pure delight," but at the same time realizing that it is not in buildings ventilated at the ceiling, although even saints immortal may there reign.

Again I must disagree with the Doctor, and say that top ventilators *do* waste the heat, and that floor ventilation *will save* it, and at the same time ventilate the building more scientifically than any system of top ventilation yet put into practice.

If the Doctor still disputes this assertion, I stand ready to meet him half way and challenge him to a contest, in which two rooms of equal size are to be chosen exactly alike, in the same town, both to be heated by furnaces of the same make, the one room to be ventilated by a ventilating shaft at the floor, and the other to be ventilated by a ventilating shaft at the ceiling.

Both rooms are to be taken cold, and the fires out in both furnaces ; then each room is to be heated in all parts to the same given temperature, and the exact amount of fuel required to do so carefully estimated in each instance ; and if the Doctor is able to supply his room, ventilated at the top, with a given amount of fresh air, and heat the room alike in all its parts to a given temperature, with the same amount of coal required to heat my room, ventilated at the floor, and supplied with the same amount of fresh air, and heated alike in all its parts, and, by analysis, show the same amount of carbonic acid in each room, I will pay all the expense of the investigation ; but if he fails to do so, he is to pay all the expense of the investigation.

Talk is cheap ; quotations count for but little at this day and age. This thing of saying that somebody else said so is worth nothing unless backed by scientific, practical investigations.

The Doctor should remember that the world "do move." It is only a few years since our geographies taught us that what are now some of the fertile and prosperous States of this great Union were once a part of the so-called Great American Desert; but investigations and facts proved that this antiquated geographical instructor was quite considerable "off his base;" so it is with heating and ventilating. Writers have written and quoted, and rewritten article after article on heating and ventilating, which they have *quoted* from some one else who has advanced some pet theory which has never been based upon scientific investigations, and then assume to call it *authority*; but I beg leave to inform them that no scientific man can afford to accept anything as authority at the present day that is not sustained by carefully made scientific investigations.

Consequently I challenge Dr. Thayer to prove his assertions by a multiplicity of practical demonstrations, as I have done, and stand ready to repeat, provided my adversaries are willing to pay the bill if they fail to fairly prove that I am wrong; and I can assure them I will gladly pay the bill if they prove me to be in error regarding the methods I have advocated for heating and ventilating rooms and buildings; but until they *are* ready to come to the front with *something tangible*, something more than *mere quotations* from *antiquated writers*, I do not care to take up my time or that of the readers of THE SANITARIAN in discussing this moribund question until they are ready to meet me half way and prove by *practical demonstrations* that what they claim to be right *is* right, or that what I claim to be right *is* wrong.

THE SANITARY CONDITIONS OF ITALY.

To the Editor of THE SANITARIAN :

I have noticed in many foreign papers several remarks on the sanitary conditions of this peninsula.

It is the assertions in these papers that I beg, with your permission, to contradict. The greater number of these statements are based on the inquiries undertaken by the Government and published by the Statistics Office of Rome.

These statements go so far back as the year 1886, and were taken up by the Administration to prove the state of things and to find the remedies.

The result of the researches was the bill issued December 22d, 1888, which was the means of a great deal of good in Italy's boroughs (*comuni*), giving them, be it with their own resources or through loans, the facility for doing the works necessary for bettering their condition. This is proved by the following statements :

In 1890 the Italian Bank of Deposits and Loans gave 35,000,000 francs (£1,400,000) to the boroughs for sanitary operations, without including 100,000,000 francs (£4,000,000) to Naples * and 4,000,000 francs (£160,000) to Spezia for the erection of workmen's dwelling-houses in a locality named Humbert I., and capable of containing 5000 souls,† and other special resources which gave Rome and other boroughs the chance of doing something in the way of sanitation. This makes a total of nearly 150,000,000 francs (£6,000,000) employed in sanitary purposes.

On account of these works, Italy ranges among the first European nations. This fact is still better evidenced by the following table, which gives the general mortality during the period 1881-89 : ‡

YEAR.	KINGDOM.		Deaths per cent. Inhabitants.
	Population up to December 31st.	Deaths.	
1881.....	28,459,628	784,181	27.55
1882.....	28,648,381	787,326	27.48
1883.....	28,837,134	794,196	27.54
1884.....	29,025,887	780,361	26.88
1885.....	29,214,640	787,217	26.95
1886.....	29,403,393	844,603	28.72
1887.....	29,502,146	828,992	28.01
1888.....	29,780,900	820,431	27.55
1889.....	29,969,654	768,068	25.63

In the above table a notable diminution in the mortality is evident, which from 27.55 per cent has descended to 25.63 per

* Report to the Sanitary Council read by Professor L. Pagliani, General Director of the Health of the Kingdom, February 10th, 1891.

† Ingegneria Sanitaria-Curin. The erection of workmen's dwelling-houses in Spezia by Mr. A. Raddi, 1891.

‡ Mr. L. Pagliani's report.

cent, although the Italian population has increased by two millions of inhabitants.

Better evidence still is got in consulting the following tables, published by the General Direction of Health, by the Minister of Industry and Commerce, and by Dr. Bodio, Director of the Commercial Statistics, and in comparing the same with those reflecting other nations, of which I here make a *résumé* : *

NATIONS.	1887.	1888.	1889.	NATIONS.	1887.	1888.	1889.
	Per cent.	Per cent.	Per cent.		Per cent.	Per cent.	Per cent.
Sweden.....	16.10	15.97	15.94	Switzerland ..	20.09	19.85	20.31
Scotland	18.68	17.64	....	Prussia	23.79	22.88	23.14
England	18.79	17.80	17.86	Germany †....	23.79	23.18	24.27
Ireland.....	18.31	17.98	17.53	France ‡.....	25.23	24.85	24.08
Belgium.....	19.30	20.08	19.65	Italy	28.01	27.55	25.63
Holland.....	19.70	20.25	20.13	Austria	28.62	29.13	27.16

We Italians are certainly a long way off from Norway and your country, but we hope that the sanitary rules which are every day and everywhere being applied will soon put us on a level with these countries.

The new sanitary bill (1888) establishes in every province a sanitary council having at its head the prefect, assisted by a special sanitary officer. Provinces having over 20,000 inhabitants are obliged to have a hygiene office. The sanitary doctor overlooks all measures taken throughout the province, the sanitary officer in his borough. The first makes his report to the Provincial Council, the second to the Provincial Doctor.

The bill enforces vaccination (obligatory), the distribution of potable water, the pharmaceutical service of the cemeteries and the hygiene of dwellings.

The Director of the Health of the Kingdom, the eminent professor, L. Pagliani, superintends all the boroughs of the country and presides over the Superior Council, which is always in direct communication with the provincial councils. Moreover, Professor L. Bodio, chief of the Statistics Office, helps to prove the progress realized. A considerable number of hygienists, of which I must name the senators Pacchiotti,

* Statistics of the causes of death in Italy in 1881-89.

† 173 cities having over 15,000 inhabitants.

‡ Cities having over 10,000 inhabitants.

Bizzozzero, Molescott, Mantegazza, Canizzaro, and the professors Celli, Corradi, Peroncito, Tommasi-Crudeli, G. Baccelli, De Giaxa, Sormani, Morselli, Canalis, Fazio, Manfredi, Di Mattei, Sanfelice, etc., and the engineers Boella, Corradini, Bruno, Passaro, Melisurgo, Spataro, Bentivegna, Fichera, Ponzo, Cagliasacchi and Poggi, Francolini and Veraci, with their learning greatly help the public works of sanitation. And why, we ask, cannot we legitimately hope for hygienic progress in our country, when so many learned men, to whom Pasteur, Pacini, Koch, and Petenkoffer have opened a way which they may follow, inspired also by the French savants such as Brouardel Proust, Vallin, Collin, Napias, Rochard, A. J. Martin, Dujardin-Beaumetz, Durand-Claye, and Bechmann; your learned compatriots and German savants; and Frankland Lindley, Douglas-Galton, Latham, and others in England?

We are going ahead, and as a last proof we submit the following table of mortality of preventable illnesses in the kingdom during the years 1887-89:

ILLNESSRS.	1887.	1888.	1889.
	Per cent.	Per cent.	Per cent.
Small-pox.....	16.4	18.1	13.17
Typhus.....	27.2	23.4	20.88
Exanthematic Typhus.....	1.9	2.09	2.16
Puerperal Fever.....	2.5	2.4	2.10
Scrofula.....	3.23	2.92	2.79
Measles.....	23.7	20.9	13.83
Scarlatina.....	14.6	9.05	6.42
Diphtheria.....	24.6	21.9	18.3
Malaria.....	21.03	15.95	15.77

This table speaks for itself. Malaria has notably diminished on account of great works done in the Agro Romano, at Rome, in the marshes of the Low Polesine, in Sardinia and elsewhere, works which gave to agriculture an immense extension of land. A great deal more could be said on this subject, but I think this is sufficient to show that the assertions made in the foreign papers are entirely erroneous, and also to show that we are rapidly progressing.

SPEZIA, May, 1892.

ING. A. RADDI.

THE INCREASE OF CRIME AND MORAL EDUCATION.*

By Rev. H. MARTYN HART, Denver, Col.

IT is with education in morals as it is with education in any other branch of knowledge. Certain facts are safely lodged in the mind by constant repetition, and these form the centres to which the less definite principles are attached. Every rule in arithmetic is concocted from a principle, but a teacher never dwells upon the principle, but is content to make the rule learned by heart, and then the examples are worked by the rule. It must be so with education in morals, or indeed in religion. The wisdom of the Church knows this, therefore she directs that the child shall learn "the Creed, the Lord's Prayer, and the Ten Commandments, and be further instructed in the catechism set forth for that purpose;" and she appoints that the curate shall himself see that these formularies can be accurately repeated and their general tenor understood.

Nowadays the clergy are too hard-worked to do the Sunday-school duty, so they leave it to superintendents and teachers, who because of the difficulty of making children, especially in America, do what is irksome, and what requires prolonged and sustained attention, are induced to adopt meretricious and too often undignified expedients to make the Sunday-school attractive forsooth. Are the other branches of education made attractive? Are children to be trained in by far the most important branch of their education only by cajoling them? Far better have every branch of education to be "taken" or "not taken," at the caprice of the child, and let the State make moral culture compulsory.

Here is the advice given this very week by a correspondent in the *Living Church*, how to make the Sunday-school—the only place for distinct moral culture—attractive:

"There should be good music and plenty of it. In addition to the organ, a violin and cornet or flute, or even a triangle, would add interest. The songs at the opening should be bright and lively, to awaken interest, and may be more subdued at the closing, thus tending to quiet deportment in de-

* Abstract of a paper in the *Living Church*, July 30th, 1892.

parting. The director of the music should stand in full view, and with baton wave the time. Fifteen minutes given to a rapid recitation to the teacher will be more beneficial to the class than an hour of dry routine. A few remarks by a visitor, or a bright thought expressed by a teacher or older scholar will add interest," etc.—the whole object being to "interest" rather than instruct the children. There is a school in Denver where they have an orchestra of seventeen pieces, and they entertain the audience with operatic overtures."

Knowing these things: That the only mode of moral education is teaching children the rules of morality—the Ten Commandments, thus supplying them at the same time with an ever-present incentive to keep them, adding to this foundation, as the moral education progresses, further formularies, causing them to be committed to memory accurately, so that they may remain as nails fixed in a sure place, to which the explanation and fuller meaning may be appended—knowing this and also knowing the *modus operandi* of the modern Sunday-school, it cannot be denied that the supposition that moral education is carried on in the Sunday-school, is without foundation, and the Church does not do it. Few children go to church, and if they did, it would indeed be a wonder if they were steadily and systematically educated in morality. How many sermons deal with the Ten Commandments and their wide-stretching meaning? And so it comes to pass that the children of this country are practically devoid of education in morals. The public-school system declines the work; the Sunday-school system toys with it; the Church never seriously attempts it. Moreover, a considerable fraction of the children attend neither Sunday-school nor church. But this is not all. A sharp knife in the hands of a mischievous boy is a much more damaging instrument than a blunt one. So the more elaborate the "goddess" education, the more capable becomes the immorally disposed. In other words, it is to be expected that the better a child is educated who has no moral ballast, the more capability is furnished him to carry out his immoral designs. Having no internal principle, and only being kept in the path of right by external influences, whenever these, from any cause, are not dominant, and a temptation is present to act immorally, the result is a criminal

act ; and the sharper the intellect and the more cultivated the observation, the more readily is the opportunity observed and seized. Reference to the statistics supplied from the census returns fully corroborates this theory. The figures are as startling as they are serious. As education becomes more costly, and presumably more elaborate, so, in direct proportion, does crime increase.

In 1850 there were 3,642,694 children under instruction, at a cost of \$4.30 each ; there was the none criminal to every 4001 of the poplation.

In 1880, 9,946,168 children were in the public schools at a cost of \$9.72 each, and then there was one criminal to every 1254 of the population !

Or look at some of the items of which this is the total :

	Cost of each pupil was	There was one criminal in a pop. of
In Massachusetts :		
In 1850.....	\$5.70	1,267
1880.....	14.83	638
In Vermont :		
In 1850.....	2.44	4,372
1880.....	9.58	1,481
In New Hampshire :		
In 1850.....	2.72	42,142
1880.....	8.64	1,445
In Maine :		
In 1850.....	1.90	8,346
1880.....	7.11	1,832
In New York :		
In 1850.....	3.34	3,754
1880.....	10.78	731
In Ohio :		
In 1850.....	2.02	17,232
1880.....	14.72	1,694
In Louisiana (slave State) each white child cost :		
In 1850.....	13.90	777
White and colored		
1880.....	6.15	4,518

Until the war Virginia had no public-school system, and after two hundred years of what might be called "religious" schools there was one criminal to 6566 of the population. Massachusetts has had a public-school system since 1647, and two hundred years of that régime produced one criminal to 649 of the population; ten times more criminals than in Virginia to the population.

It is the habit to ascribe to immigration this fearful deterioration in public morality. But shelter behind that theory is altogether futile.

There were lately in our State penitentiary 412 prisoners; of these, 36 were colored, 64 foreign born, and 312 native Americans. It is presumable that the colored prisoners had had a public-school education. Of the 64 foreign born it is not unfair to suppose that 34 of them came over as babies, or young enough to go through the public schools, so that out of the 412, 372 had had the advantage of a free education without any real moral training, and only 30 can possibly be attributed to the lack of moral, of the scum of the population of the Old World which the tide of immigration is supposed to wash upon these shores.

It is but natural that in a State so far west as Colorado, and one in which a sparse population is thinly sifted over a vast expanse of territory, we should have many fugitives from shame, so that we can understand how that we have in durance vile in this State one prisoner for every 350 of the population; our State is fairly exceptional. But the increase of crime has been steady over the whole country for many years.

In 1850	{ there was	3442	of the pop.
1860	{ one crimi-	1647	"
1870	{ nal to	1021	"
1880		837	"

The New Jersey Patriotic Association showed lately that crimes of violence have more than doubled in proportion to the population since 1850, and last year was the worst.

Bishop Whipple said lately that every fifteenth person in Chicago is arrested yearly.

The results of the last census have not as yet been published, but the public statistician was here the other day, and he told me he had finished his task and was about to print

the results. He found that conviction for crimes which might be termed second-class had increased, but that in the case of the most serious offences there had been a slight diminution—a statement which appears to me to add only a deeper dye to the condition of moral depravity. Convictions for the more desperate crimes are daily less possible. The judges may charge the juries in the most distinct and emphatic terms, but what effect has it upon the verdict? The most deliberate murderer has every chance of escape. General Bearce's murderer, who shot him in his buggy at noonday and when he was unarmed, with a surveyor sitting at his side, a Leadville jury acquitted, because they said they had never yet hung a man in Leadville, and they were not going to begin with an old man. Mr. Melbourn was similarly shot down in our streets, and the jury brought in the absurd verdict of "involuntary manslaughter." The poor fellow was shot in the back and was unarmed. Young Banks, who was once at Jarvis Hall, burst into a saloon on Sunday afternoon, which of course he had no right to do; the saloon keeper shot him dead at once. The judge charged the jury in most distinct terms, but they acquitted him. We all of us know that to empanel a jury of respectable men is the most difficult matter the courts have to contend with. A judge told me the other day that so base was a whole panel of forty that he discharged them all. No wonder that convictions for the most serious crimes have "slightly decreased," but it is on account of a further moral lapse.

I am not writing this to the public press, I have tried that plan; it only brings down upon myself a deluge of senseless abuse; but I am appealing to you, Christian people, and I say to you, "it is time to awake out of our sleep:" we all must put on the armor of righteousness, and make an attack upon the root of this evil. We must insist that the children shall be morally educated. You say "How?"

First, catechise your own children to find out if they can say the Creed, the Lord's Prayer, and the Ten Commandments. Then be not afraid to agitate that the authorities who are responsible for the curriculum in the public schools shall make the learning of the Ten Commandments a regular part of that curriculum. I do not say, "Teach the Bible,"

or even read it. This I am well aware is too much to expect. Neither do I think it would effect much moral education. But the Ten Commandments, in the fulness of their meaning, are the great factors of moral education. No section of the community can possibly object to their introduction ; let them be taught.

Set yourselves the studious example of righteousness. Could you not even say a prayer just before breakfast, as a family recognition that "you and your house serve the Lord?" Be regular in your public place of worship. Let your light shine. Faithfully serve the State. Vigorously uphold righteousness and as vigorously denounce all forms of unrighteousness. Do what in you lies to arrest the increase of crime ; for unless this can be effected, more surely than the waters leap Niagara will this great country reach a social catastrophe which will pale the memory of the French Revolution.

It is now five or six years ago that I was in the company of three leading men of this State, two of them held the very highest place in the public regard, and then occupied the highest and most responsible offices. The conversation turned upon this subject. All three agreed that the end would come in fire and blood, one said within seventy-five years, the second thought in fifty years, and the pessimist of the party was certain that twenty-five years would bring it.

"Seeing these things are so, what manner of men ought ye to be in all holy conversation and godliness."

INTOXICATION AND CRIME.*

By Dr. A. MOTET, Medical Expert of the Tribunal and the Court of Paris.

THE alarming progress of intemperance has become for modern society a subject of grave anxiety. On all sides we seek for some means to arrest the overwhelming march of an evil which strikes at the same time the individual, the family, and society. The efforts of governments on one side and of

* Read at the Fourth International Prison Congress, St. Petersburg, Russia, 1890. *C. D. Randall's Report, Circular of Bureau of Education, No. 2, 1891.*

temperance associations on the other have secured only incomplete results. Must we seek in special legislation severe penalties against drunkenness, as a remedy for an evil which takes on the proportions of a scourge? This is the question that the commission of organization of the Prison Congress of St. Petersburg has presented for consideration.

The reply would be easy, if it related to simple intoxication or to habitual drunkenness, to those persons who in England or in America are known as "habitual drunkards." But the consumption of alcohol of commerce has singularly modified the character of intemperance for nearly half a century. For the reeling drunkard, filling the street with his songs, more noisy than dangerous, is substituted the alcoholic, undergoing poisonous and often convulsive action from alcoholic liquors of all species, as varied in their names as in their composition, all alike terrible in their effects. The first gorges himself with wine; his stomach, revolting against the enormous quantity of liquids, expels them, there are increased urinary secretions, and sleep, profound and heavy, terminates a debauch without grave consequences. The second drinks less, but what he drinks is bad.

The drunkard tends more and more to become quarrelsome, aggressive, brutal, and the number of assaults by persons intoxicated has increased to a remarkable degree.

Owing to the fact that intoxication is more rapid and more profound the question is singularly complicated; it presents itself under a double aspect—that of the necessary repression of a vice which has become a social danger, and that of the valuation of the physical, intellectual, and moral state of the individual whom the law should reach.

It appears, then, difficult to us to-day to reduce to simple terms a question which admits extended unfolding. The legislature should not neglect to examine all points of the problem, at the risk of allowing, in practice, most serious difficulties to arise. Without pretending to formulate a solution, in a penal point of view, we believe that we would do a useful work in presenting to the prison congress some general considerations upon the various conditions of "alcoholism," which clinical study has enabled us to distinguish one from the other.

If the French law is mute on the question of excuse drawn from the state of intoxication of the author of the crime or misdemeanors, if there be no fixed law, the judges in the meantime have shown according to the circumstances more or less severity, and the Court of Appeals has several times spoken in the line of energetic repression. In the works of our jurists, our criminal law writers, there are not less than two very different currents of opinion. The one takes no account of the intoxication and systematically considers only the offence ; the other, more indulgent, sees in the delinquent in a state of drunkenness an irresponsible agent, an unconscious machine. Others, finally, establishing varieties in the degree, in the form of intoxication, mitigate more or less the criminal character of the act and exonerate the accused from a part, more or less considerable, of the penalty.

By the indulgent the state of intoxication is considered as one of transient mental alienation ; they show the existing analogies between the phenomena of drunkenness and those which are usually met in mania or in general paralysis ; that intoxication is simply an error.

It does not seem to us possible to compare the drunken with the insane. "Fools do not wish" to intoxicate themselves ; it is necessary to desire it. The insane often undergoes without sense an evil he has no power to withdraw from. The drunkard, on the contrary, has sought and produced intoxication ; his mental faculties are impaired temporarily by a cause which has none of the fatality of hereditary predispositions, degeneration, etc.

For others, the attentive examination of the facts has led them to examine if at the moment of the commission of the offence the intoxication was complete or incomplete.

And distinguishing three degrees, they considered as responsible, that is to say, punishable, those who had reached only the first degree of intoxication ; they extenuated the responsibility of those who had reached the second degree, and admitted the irresponsibility of the third. This was the doctrine of Friedrich and of Hoffbauer.

In practice, these distinctions above all those between the first and second are nearly impossible to justify. Mark has said this, and all those who are occupied with these special

studies agree that they lead to nothing certain. "Theoretically," said Lentz, "we can establish this division of intoxication into three successive periods, but practically and especially in medical jurisprudence, these divisions can have no value and could not serve to fix the limits we seek."

Where then can we find the elements of a rigorous scientific estimate of the mental condition of the delinquent alcoholic? When will magistrates be permitted to inflict on him a just penalty? When should they consider him guiltless of a criminal act?

The question is the most delicate, the most difficult to decide. It is a difficult question for medical experts, and we must say that it is impossible to furnish a formula which can be applied to all cases. It is only by an individual examination, extending to the entire mental history of the delinquent in the state of intoxication, that one can arrive at a positive opinion. It is in proceeding this way that medical experts have been led to study intoxication under two aspects, very plain, very clear, and to distinguish simple from pathological intoxication.

Simple intoxication is that which prostrates a man, otherwise healthy, after alcoholic excess. We do not wish to enlarge on the varieties of simple drunkenness, although the nature of the poisonous agent plays a great rôle in the evolution of possible accidents. We hold to this precise determination—that temporary drunkenness may be avoided by individuals. Hence the act is voluntary and the consequences are chargeable to intoxication whether or not the drunkenness be habitual. The magistrates can then proportion the punishment to the antecedents of the prisoner. But should we hold to these elementary ideas? We think not. It is proper to inquire if drunkenness is produced in conditions such as the delinquent undergoes without having sought it. We have had to examine several individuals in special conditions; one, among others, a butcher boy, who descended to the cellar with his employer to put a barrel of wine into bottles. The alcoholic vapors intoxicated him. He was certain he was not drunk. When he ascended and the air struck him he suddenly became affected by the alcohol. One of his comrades joked him, and he flew into a passion, and seizing a knife on the stall, wounded his companion, fortunately slightly. Being

arrested, he submitted to an examination, and we had no hesitation in considering his intoxication as accidental and involuntary. Our opinion was accepted by the judges, who were familiar with all the facts of the case. Induced intoxication is not less important to determine, and if the examination is more delicate than in the preceding case, it is not impossible in the meantime to establish the fact that the delinquent has undergone a training in which his will had no part. It is true that these cases are rare, as well as those in which drunkenness is premeditated—that is to say, when the criminal has sought in alcoholic excitement the resolution he would not have had without it.

We should indicate the distinctions. They seem to us to command the greatest reserve in the formula of an article of the penal code which specially relates to intoxication. In France, Chauveau, Faustin-Hélie, Rossi and Le Sellyer consider that the man who commits a crime or a misdemeanor in a state of drunkenness may well be civilly responsible for the damage which he has caused by his negligence or imprudence, but according to these writers he would not be criminally liable. But this opinion has never been accepted by the Court of Appeals. “Drunkenness is a voluntary and reprehensible fact, and it can never constitute an excuse which morality or law will accept.” Mark and Tardieu are of this opinion. It is also ours. Simple intoxication is punishable because it can, if unpunished, begin to-morrow the same excesses of which the consequences will be to compromise again the interests of society and individuals. Also we prefer the silence of the French law. It permits the judges to estimate the mental condition of the delinquent, to determine the form and intensity of the drunkenness and the nature of the poisonous agent. It is not rare to meet persons of defective cerebral organization, whose condition on one side is attributable to alcoholic intoxication, and on the other to mental defects of the accused whose resistance to alcohol is less than in one who has an organization less imperfect. We do not wish to say that these persons will always be irresponsible for offences committed by them in a state of intoxication. There are many among them who know that they cannot drink without danger. They should not expose themselves to alcoholic intoxication. But there are many also whose moral and mental

debasement especially diminishes the resistance of the appetite for alcoholic drinks. They are found on the boundary, which is not well defined, between simple and pathological intoxication.

Pathological intoxication. This kind of intemperance differs from the preceding in this, that the pre-existing morbid condition added to the usual symptoms, acutely aggravated by alcohol, assumes a character immediately dangerous. According to the expression of Lentz, "alcohol lights the fire whose ravages will be more extended in proportion as the materials upon which it feeds are more combustible."

And there exist besides insane, properly called, imbeciles and epileptics, with whom drunkenness is especially deplorable, a numerous class of degenerate persons, bearing heavily the burden of pathological heredity, capricious in their ideas and in their acts. These are true maladies in which the intoxicating action of alcohol manifests itself more frequently by dangerous impulses. These are the unbalanced, the hereditary drunkards, who cause the most serious embarrassment. We repeat here what we have had occasion to write and to say many times already, that for these alcoholists of a special kind of whom we mark the uniformity, suffering from mental disability without power to formulate fixed conclusions, it is as impossible to take severe judicial measures as lasting administrative action in the present state of legislation. If they are confined in an asylum they are cured from the attack which exhausts itself as soon as the poison is eliminated. Cured from a transient mental trouble, they ask to be discharged, or often interested but imprudent friends make the request, and the physician of the asylum is not authorized to refuse. He yields, regretting his inability; he foresees the early return, perhaps, of the same disorders under the influence of the same cause, and the law does not permit him to extend protection, social defence.

It is for this class of alcoholized delinquents that we desire the adoption of more severe measures, those which are possible to take to-day, but I dare not insist, fearing to call up an order of considerations foreign to the programme of the commission of Congress, which is less occupied, if we understand it well, with the administrative than with the judicial and penal question of intemperance.

The considerations which we submit to the congress have aimed, above all, to separate simple from pathological intoxication. We have perhaps treated the question more as a physician than as a lawyer. We have to excuse ourselves for want of sufficient ability for easily putting things in the proper place. However, we believe we are authorized to present the following conclusions :

1. In the interest of social order, of family protection, of individual preservation, voluntary intoxication should be considered as a misdemeanor and severely repressed with increase of punishment in the case of relapse.

2. The habitual drunkard should be deprived of his civil rights and his removal from office should be secured by the public minister. And as a corollary, we add that persons affected by delirious attacks, active or subactive, from alcoholic intoxication, should be maintained in a special establishment during a long time. Their discharge should be postponed until every trace of intoxication has disappeared and an early relapse will not be feared.

To give to our thought a more definite form we will say :

Drunkenness is punishable, as well as misdemeanors or crimes committed under its influence, when it is classed as simple and when it is manifestly in the power of the delinquent to avoid it.

It is punishable with increase of punishment when the intoxication has been sought to incite the commission of a crime or misdemeanor.

Drunkenness is punishable, but with a degree of mitigation which belongs to the magistrate to determine, in the case of persons of feeble intelligence whose ability to resist alcoholic desires is diminished by the inferior condition of their mental organization. They should not be exculpated when they know that they cannot drink without danger, and this is the case more frequently than is supposed.

Crimes or misdemeanors cannot be punished when they are committed during delirium, acute or subacute, from a paroxysm of alcoholism. It is the same in the case of chronic alcoholism, when the definite cerebral injuries have compromised the integrity of the organ and determined the durable disorder of its functions.

ERYSIPELAS—IS IT CONTAGIOUS? ITS TREATMENT.

THIS was the subject of an important communication to the Société Médicale des Hôpitaux, by M. Guyot, at its meeting of June 13th, and was the means of calling out a very interesting discussion of a subject that interests the hygienist, as well as the therapist.

As reported in the *Progrès Médicale*, he said: "For seven years I have had charge of the service devoted to isolated cases of erysipelas, attached to the Hôpital Beaujon, and the facts there observed have suggested to me the following reflections. In 1885 I was almost convinced, as was also Gosselin, that erysipelas was contagious, like measles, small-pox, scarlet-fever, etc. I now think that the contagion of erysipelas is not nearly so intense as I then supposed.

"An error in diagnosis caused a great number of patients—seventy at least—to be transferred to my service, having wounds and abrasions of the skin, not one of whom had erysipelas. On the other hand, when I succeeded in obtaining the formation of the special service, isolating patients with erysipelas, I had, within twenty-four hours, two convalescents from pneumonia who were attacked with erysipelas in consequence of the presence of a case of that disease near them in the ward, one of whom died. Two of my externs came into my service suffering with a light attack of varicella. They took erysipelas, and one of them died. I am convinced of the contagious nature of erysipelas, but do not know under what conditions it is produced. Receptivity must exist before the contagion finds the means of development within the system.

"Endocarditis is an exceptional occurrence, and albuminuria is rare in erysipelas. The period of incubation of the disease is very short; cold frequently causes a relapse; but relapses may and do occur without cold. Alcoholism is the factor that causes the most unfavorable prognosis in erysipelas. The progress of the disease is never arrested by any kind of treatment.

"*M. Le Gendre*: I have frequently observed, in the isolated service, in Saint-Antoine patients suffering with erysipelas who had albuminuria and endopericarditis.

“*M. Guyot* : Endocarditis is exceptional. I have carefully auscultated a great number of patients. I at first frequently thought that I found albumen in the urine, but on a careful examination, I was convinced that none existed.

“*M. Fuhel-Rénoy* : I have never had the care of a service devoted specially to cases of erysipelas. I myself had erysipelas in a service in which I filled the place of another, in whose wards were three cases of erysipelas. The same year two of my infirmarians were attacked with the disease. I think that albuminuria is the rule in erysipelas. The proportion of the *globuline* is often greater than that of the *serine*. I have observed in the Maison Dubois a case of erysipelas contracted, certainly, from an infirmarian.

“*M. Guyot* : I am convinced of the contagious nature of erysipelas, but I do not know under what conditions the contagion becomes active. I am surprised to see that, in my service, which is badly arranged in regard to hygiene, erysipelas is not more frequently developed, as I am accustomed to receive cases from other services in neighboring institutions.

“*M. Laveran* : The conclusion may be drawn, from the report of M. Guyot, that it is useless to isolate cases of erysipelas. In the military hospitals they are isolated in the surgical wards, but not in the medical service. I think it an objectionable course. I have observed, on several occasions, cases of contagion in the fever wards. I am convinced that erysipelas is, for many patients, a very dangerous disease.

“*M. Guyot* : Acting on the experiments of M. Thalamon with ether sublimate, I have tried injections of the sublimate around the erysipelalous patches, but never obtained any satisfactory results.

“*M. Rendu* : I have had, in the Hôpital Necker, many cases of erysipelas in my wards. In Necker there is no means for isolating such cases ; and besides we receive infirmarians from the Hôpital des Enfants. In a few cases only was there any evidence of contagion. I am convinced that there were a few rare cases attacked in the wards, but they were the cachectic, the tuberculosis, those having albuminuria, cardiac diseases, or diabetes. I am persuaded that erysipelas is not a very contagious disease, like whooping-cough or measles. For treatment I apply boric acid or sublimate on the erysipelalous patches.

“*M. Burluraux* : I have been very well satisfied with irrigation made at the point of origin of the erysipelas—that is, in the throat or the nose, when the disease is in the face. By this means the fever subsides, and the most severe phenomena are diminished rapidly. I believe the utmost care should be used to keep the throat free.

“*M. Le Gendre* : My service includes scarlet-fever, measles, erysipelas, and diphtheria. The cases of erysipelas can, with almost impunity, be placed beside women with measles and with those who have been recently confined. I have not seen in my service a case of contagion. The spraying with sublimate often causes an erythematous eruption of the face resembling eczema. In the Hôpital des Enfants Malades I have employed mercurial ointment with good success. I have also had the parts enveloped in a solution of salicylate of soda of 10 to 20 per cent. I have by this means often seen the disease arrested at the end of two or three days. I believe that the employment of baths is also very useful.

“*M. Renault* : I have lately seen a patient in whom spraying with sublimate produced an intense inflammation of the skin.

“*M. Sevestre* : Erysipelas seems to me to be communicated usually by being carried from one person to another by a third person. For this reason antiseptic measures should be employed ; the hands should be washed, and I think it is necessary to apply antiseptics to the skin of the patient.”

In addition to these remarks, *La France Médicale* gives the following comments :

“*M. E. Gautier* : No distinction has been made between surgical erysipelas and erysipelas of the face, called medical. The micro-organism is the same in both, but the clinical development is entirely different.

While surgical erysipelas is always contagious, medical erysipelas is never so, or very rarely. When I was intern d'hillairet at Saint-Louis, I tried, at different times, in order to determine more accurately the therapeutics of the disease, to inoculate patients having lupus of the face with erysipelas. The serous matter arising from the phylctenular eruption of erysipelas of the face was never successful in producing the disease. Besides, patients having eczema placed side by side

with those having erysipelas of the face never contracted the disease. I do not positively deny that erysipelas may be contagious ; facts do not justify such an assertion ; but I believe that such a result is extremely rare."

The same journal gives the remarks of M. Gaillard on arthritis of the knee, with staphylococcus in erysipelas of the face.

"Cases of suppurative arthritis, complicating erysipelas of the lower limbs, are not exceptional.

"I have had a case which ended in death—an old lady who came to the hospital to be treated for a phlegmamous erysipelas of the right leg. But suppurations of the joints are more rare in erysipelas of the face. I met with only one case in the six months during which I had charge of the isolated service of the Hôpital Saint-Antoine. It was a young girl of twenty-one years, who had erysipelas of the face, which at first did not present any symptoms of a malignant character. On the sixth day general symptoms of a very grave character made their appearance ; on the following night the first indications of an arthritis of the right knee were observed. On the succeeding days the articular phenomena increased, and although an incision was made and much pus withdrawn, and notwithstanding the fact that arthrotomy was performed, on the tenth day the patient died. At the autopsy extensive lesions, showing advanced destruction of the surrounding tissue, were found in the joint, and an acute nephritis in which congestive and catarrhal phenomena predominated."

M. Sevestre, in speaking of the treatment and the contagious nature of erysipelas, said : "In 1889 I observed, at the Hôpital des Enfants-Assistés, a severe case of erysipelas treated successfully with antiseptic baths. An infirmarian, twenty-four years of age, entered on May 1st for treatment of an erysipelas which began with a patch at the right nostril. The disease spread over all the face, over the scalp, and finally invaded the body. The temperature reached 40° cent., and remained up to the tenth day, with some exacerbations, reaching, in the evening, 40.50 and even 41°. The treatment consisted in the application of vaseline and salol and the internal administration of quinine. In consequence of the persistence of the fever, I substituted salicylic acid for the

quinine, in doses of from 1.50 to 2.50 grammes in twenty-four hours. The disease continued to advance, and having reached the umbilical and the lumbar region, I caused the patient to be placed in a bath to which 500 grammes of borate of soda had been added. The first bath was given on May 15th; on the 22d the fever had completely disappeared, and, I may add, that on the 20th it had very sensibly diminished.

“The borated bath alone caused in this patient a gradual diminution of the temperature, with great amelioration of the local phenomena.”

“*M. Galliard*: From November 20th, 1891, to May 20th, 1892, I had in the isolated service of the Hôpital Saint-Antoine 350 cases of erysipelas. I have no doubt of the contagious nature of the disease. I observed, however, only three cases of contagion. It was in consequence of the use of antiseptics that the spread of the disease was avoided.

“It was also in consequence of active antiseptic measures that many females who were confined, some at term and some who gave birth before term, during the service in which were cases of erysipelas, of scarlatina, and of measles, recovered without complications.

“I may add that some patients who were admitted for lymphangitis or for mild forms of erysipelas of the extremities were attacked with secondary erysipelas of the face. The surroundings had, probably, some influence in causing an aggravation of the disease, as well as the complications.

“Albuminuria was very frequent in my cases, but it disappeared with the fever. I had six cases of grave renal complications. I think, with *M. Guyot*, that alcoholics cannot resist the attacks of erysipelas; and, like him, I have noted the rarity of cardiac troubles in the disease. They are limited to murmurs, which are observed during the febrile stage and disappear with the fever. In the autopsies on cases of erysipelas I have sought in vain for endocarditis, pericarditis, or myocarditis.

“The articular complications were equally rare. I have seen only a few cases of mild pseudo-rheumatism, and only one case of suppurative arthritis.

“In erysipelas of the face and the scalp, I have habitually used sublimated vaseline, vaseline with boric acid or with

resorcine. I have avoided caustic solutions. Thalamon's method has not given me satisfactory results. Cold baths have given great satisfaction in hyperthermic and ataxic cases, with or without broncho-pulmonary complications. I have used salicylate of soda extensively, sulphate of quinine, and Todd's mixture. I have treated throat troubles with aqueous solutions of borax."

The diversity of opinions expressed in the discussion here given regarding the contagious nature and the treatment of erysipelas does not detract from the interest attached to both subjects; in fact, the unsettled nature of the questions, so important both to the pathologist and the practitioner, will intensify the desire for more accurate information, for the accumulation of facts, and for the careful analysis of cases as they occur under the various conditions in which they are met with in private and in hospital practice.

During a service of more than fifteen years in the medical wards of St. Peter's Hospital, Brooklyn, N. Y., no case of erysipelas has ever been excluded. I will not say that under certain conditions the disease may not be communicated to others; care has generally been taken to prevent the too close proximity of severe cases to patients whose condition might increase their susceptibility to the disease if freely exposed. No case has occurred in the service as the result of contagion.

My assistant, Dr. F. J. Magilligan, has prepared the history of the cases treated in the service from March, 1890, to April 30th, 1892. During March and April of this year eight cases, all males, were treated. One case, thirty-two years of age, was discharged cured in eight days; one, twenty-two years, in ten days; one, sixty-three years, in eleven days; one, twenty-three, in sixteen days; one, forty, in nineteen days; one, a hard drinker, died of pneumonia; another, forty-five years, died in six days of meningitis, and the other remained in the ward on May 1st, when the service was changed. During 1890 and 1891 there was only one death caused by nephritis in a female, recorded as a moderate drinker. The record, however, shows that all drank more or less freely; all had albumen, varying from 5 to 10 per cent. There was no case of arthritis, no case of serious heart trouble.

The treatment has always been the same in private cases,

as well as in the hospital. Vaseline, to which half a drachm of carbolic acid—more or less, according to the severity of the case—and a drachm of sulphur were added for external use, and internally, fifteen minims of the tincture of iron every three or four hours. If seen in time the erysipelatous patches were surrounded with a line of tincture of iodine applied with a pencil or brush. It always seemed to limit the disease unless it reached the scalp, when it seemed useless.

Since the above was written erysipelas has again been the subject of a communication to the “*Société Médical des Hôpitaux*,” by M. Ch. Talamon. He has formulated general rules for the application of ethereal sublimate with an atomizer, an agent which he considers very useful in limiting the spreading of the disease.

According to the *Gazette Hebdomadaire* the rules which are to be carefully observed are as follows :

“ 1. Use a solution of sublimate in ether of one per cent.

“ 2. Use a hand atomizer of small size, but having sufficient force to give a good spray.

“ 3. Regulate the duration of each application in accordance with the force of the spray used ; the duration should be less when the instrument of Richardson is used than with the ordinary small atomizer.

“ 4. Observe also the delicacy of the patient’s skin, and try to estimate correctly the depth of the dermic infiltration from the resistance to the touch of the diseased surface, its elevation above the level of the healthy parts, and the existence or absence of blebs or bullæ.

“ 5. Do not fear vesication of the skin, but invite it boldly by prolonging the application of the spray if the disease has but a moderate extension.

“ 6. Spray the centre of the diseased surface lightly, but continue the application much longer and more thoroughly on the peripheral surface, and especially on the surrounding elevations.

“ 7. Spray thoroughly all the border of the diseased part, and extend the application to the healthy skin for at least a centimetre or two ; at that point it should be applied to vesication so as to prevent the extension of the erysipelas.

“ 8. Spray lightly the upper lids if swollen, but more

thoroughly the space below the eyebrows and the superior and exterior portions of the orbital ridge, in order to prevent the extension of the disease to the scalp.

“ 9. Then cover the face with a compress, saturated with a solution of borax, and keep it constantly moist by renewing the solution.

“ 10. One or two applications will generally be sufficient when they are thoroughly made. Others that follow should be of shorter duration. It is advisable always to make light applications to the parts already subjected to the spray, and it should be extended only to the parts where the erysipelas seems to pass the former limit.

“ 11. On the neck, the back, the body, and the limbs the application should be continued much longer than on the face.

“ 12. The patient should be advised, before beginning the treatment, that the application will produce a burning sensation quite painful, but not more so than that produced by the tension of the skin caused by the erysipelalous infiltration ; that the face will swell ; that patches and crusts will form, all of which, however, may be caused, and undoubtedly will be, by the erysipelas.

“ 13. Do not attempt to remove the crusts with the fingers ; allow them to separate and fall off themselves with the application of the borated compresses.”

T. P. CORBALLY.

THE CARAVELS OF COLUMBUS.

ACCORDING to nautical authorities, the name of caravel was generically given in Columbus's time to any vessel of burden, whatever its size and strength. “ A long and narrow single-decked vessel, with a beak at the prow,” says our dictionary of Castilian authorities, to which we turn as to an oracle in the matter of national idioms. This definition, in truth, cannot be bettered in its first part, if able nautical treatises are to be trusted. But when that classical dictionary adds that a caravel has three masts of nearly equal size, with three large lateen yards and sails, some emendation seems needful ; for though the three ships of Columbus were called caravels, only

one of them carried the kind of sail thus described, and that was the smallest and the frailest of them, the *Niña*. Our dictionary is also in conflict with the classic texts of seamanship when it asserts caravels to be dangerous because of their shallow draught, being easily capsized unless their sails were quickly trimmed, when unimpeachable masters of maritime science and experience declare them to have been stanch and stout enough for the needs of those times. The Columbian caravels were at most of eighty tons' burden, and had a square poop surmounted by a high castle, to match the smaller castle at the bow. Square sails were sometimes carried, but caravels were generally lateen-rigged. Nevertheless, the definition of one versed in those matters makes the caravels of larger size than is commonly supposed, and describes them as stanch and fleet, with high castles at stem and stern, with three vertical masts and a bowsprit, the foremast and mainmast being square-rigged, and the mizzenmast carrying a lateen sail. Some assert that they could make but 28 leagues in a day's run, others as high as 72 leagues. With my own eyes I have seen in the Columbian Library at Seville the caravels of Columbus admirably portrayed. The discoverer himself has sketched them faithfully, with the steady hand long trained by his trade of map-drawing. They are found traced in the first decade of Angleria's treatise, which is preserved as one of the priceless books of Ferdinand, the second son of Columbus. The disproportion of size between the ships at once strikes the eye, and therewithal the very great diversity of rig. The *Santa Maria* had the advantage of her consorts in build and size. Her rigging appeared more complicated than the others. Square sails were on the fore and mainmasts, a lateen yard on the mizzen. The contrast in the height of the prow and the poop was startling. The *Pinta* was shown in the sketch as a sort of compromise between the *Santa Maria* and the *Niña*, but sparred and tackled more like the former. The *Niña* looked very like the modern fishing and trading luggers, while her lateen sails recalled those nimble skiffs, so common in the waters of the Mediterranean, whose white sails, bathed in the rays of the southern sun, show gayly between blue sea and bluer sky like gulls skimming over the softly rippling surface.—*Emilio Castelar, in the August Century.*

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

INTRA-UTERINE HEMORRHAGE has lately been observed by Dr. Schauta in a patient suffering with albuminuric nephritis. The *Gazette Hebdomadaire* says the doctor found that through the influence of the renal lesion the vessels became much more friable, and that in consequence a modification of the organs was produced which led to hemorrhages capable of inducing abortion by separation of the placenta, and consequently the death of the mother or the child. Dr. Schauta thinks that in women suffering with albuminuria accompanied with hemorrhages, the attending physician should not hesitate to produce abortion or premature labor.

CEREBRAL SURGERY is still progressing. Two very unusual cases which were followed by excellent results have been presented to the Academy of Medicine by M. Poirier and reported in the *Gazette Hebdomadaire*.

M. Poirier has abandoned the usual method of trephining ; he now resects the skull with the chisel and the mallet.

One of the patients operated on was hardly fifteen years of age ; the boy had attempted suicide with a pistol ; the ball entered the temple. There were symptoms of compression by effusion into the ventricles and general muscular contraction with convulsive movements, stertor, and coma. The opening made in the frontal bone allowed the evacuation of the effused matter and the exploration of the wound in the brain with the finger. The ball, which was lodged in the lateral ventricle, was removed. The symptoms of compression disappeared very soon, and the condition of the patient was greatly improved in a short time.

M. Poirier subsequently produced another case, an epileptic patient, which he had trephined with the chisel and the mallet near the fissure of Rolando.

The brain was laid bare, and a vascular cystic tumor was found and resected. Hemiplegia followed in a few days after the operation, but it soon disappeared. The patient recovered, and the epileptic attacks did not return.

THE IMAGE SEEN THROUGH THE OPHTHALMOSCOPE is much enlarged by an instrument which has been invented by M. Galezouski. With the aid of this micro-ophthalmoscope the oculist can detect lesions of the retina which have hitherto escaped observation with the use of the ophthalmoscope in general use.

SYMPHYSECTOMY OR SYMPHYSIOTOMY has already been noticed in THE SANITARIAN. Its great success as a means of saving at least one life and sometimes two in a narrow pelvis justifies a continued report of successful operations. Modern antiseptic and aseptic methods render it a comparatively safe operation ; its employment seems justifiable when the life of the child is in danger and the deformity of the pelvis is not too great. The operation has been attended with very good results in Italy, and is now becoming very popular in Paris, and justly so, judging by the cases reported. In cases of narrow pelvis, in which heretofore the life of the child was wilfully sacrificed by the operation of craniotomy, and in other cases in which the life of the mother was seriously endangered by the Cæsarean operation, employed to save the life of the child, a more favorable result may be expected by the division of the symphysis pubis, so as to give a larger opening for the expulsion of the child.

M. Tarnier presented to the Academy of Medicine a patient on whom he had successfully performed symphysiotomy, which is reported in the *Gazette Hebdomadaire* of July 3d last.

The patient was rachitic, and had arrived at the end of the eighth month of her fifth pregnancy. The four preceding labors had been terminated by successive operations. Tarnier found that the pelvic space measured only 7 c. $\frac{1}{2}$ —nearly three inches.

He induced premature labor, but when the dilatation was complete the foetal head did not descend into the inferior straight ; he then performed symphysiotomy without any special instrument. The section of the symphysis was made from above downward with a probe-pointed bistoury, the point being guided by the finger within the vagina. The symphysis was separated to the distance of 57 millimetres, yet the head did not descend. The child was easily removed with the forceps.

Recovery was complete at the end of fifteen days. The child is alive and well.

At the meeting of the Academy of Medicine on July 19th last, M. Porak presented a woman on whom symphysiotomy had been successfully performed.

As reported in *Le Progrès Médical*, she was rachitic, had arrived at term, and in labor. The pelvis was distorted, contracted, and the antero-posterior diameter of the superior straight measured 9 centimetres, 6 millimetres. The forceps failed to remove the child, and symphysiotomy was performed and the delivery was easy and successful. Seven days afterward the symphysis was firmly united, and now, five weeks after the delivery, the woman walks as well as before the operation.

SALOPHEN IN ACUTE RHEUMATISM.—The New York *Medical Journal* of July 30th, 1892, contains an article on salophen, by William H. Flint, M.D., of the Presbyterian Hospital. He says that during his summer hospital service he caused salophen to be administered to all cases of rheumatism, and that he was so well pleased with its action that he “desires to make known to his *confrères* the advantages of salophen treatment, hoping that their result may be as happy as his own.” He gives detailed reports of six cases of acute rheumatism treated with salophen in fifteen-grain doses, given dry upon the tongue and swallowed with cool water every three hours; and with sodium bicarbonate, in ten-grain doses, administered in the same way thrice daily.

Dr. Flint's conclusions concerning the results obtained are stated by him as follows:

“From the above-given histories, it will be seen that in all the cases except the last the pains were quite relieved, the redness dispelled, and the temperature reduced to the normal point on the *second or third day of treatment*. In the one exceptional case, the patient may have exaggerated the intensity of her pain to prolong her stay at the hospital; but no objective symptoms persisted after the seventh day of treatment. It is probable that a speedier result may be safely attained by the use of larger doses or of the same doses at shorter intervals. In none of the cases was the heart's action at all

weakened, nor was the digestion impaired by the remedy. The urine was unaffected by the treatment."

He concludes that "We possess in salophen a remedy equally potent as the other salicylates to control the symptoms of acute rheumatic arthritides, but devoid of their tendency to weaken the heart's action, to disturb the stomach, and to produce albuminuria and smoky urine."

It will be observed, as hinted by Dr. Flint, that he might, had he so desired, have used larger doses of salophen, as, indeed, others have done; but many will agree that our best and most lasting results are often obtained with medium or small doses.

AN INTERESTING CASE OF EMPYEMA, WITH SPECIAL REFERENCE TO THE USE OF PEROXIDE OF HYDROGEN, is reported in the *New England Medical Monthly* for June, by H. F. Brownlee, M.D., of Danbury, Conn., as follows:

"For two weeks the pleural cavity was washed out every day with Thiersch's Sol. The patient slowly improved, but his temperature continued to rise every evening to 102 or 103. I then substituted a Sol. of Hydrarg. Bichloride $\frac{1}{3000}$. This was used about a week, when a very active salivation presented itself. During this time the temperature did not run so high, but still continued at about 101 to 101½ in the evening. I then began washing out the cavity with peroxide of hydrogen, and if I had done this before I would certainly have gained considerable time. I used Marchand's preparation full strength, putting in a considerable quantity of it with a small syringe, then allowing it to escape and finally washing it all out with a weak borated solution.

"From this time my patient began rapidly to improve. The temperature fell to almost normal, rarely exceeding 99½ at night. In two weeks from this time the discharge had entirely stopped, and I was able to recover my drainage tubes, the wound closing in a few days. He gained rapidly in strength, and in eight weeks from the day of operation he was able to return to work.

"I cannot say too much in praise of Marchand's Peroxide of Hydrogen in the treatment of this case. It kept the pleural cavity so clean that there was hardly any septic absorption, and finally prevented all formation of pus, the discharge ceasing entirely in two weeks from the time I began its use."

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076 : T. S. Scales, M.D., Health Officer.

There were reported during the month of June 77 deaths, of which number 22 were under five years of age. Annual death-rate per 1000, 29.24. From zymotic diseases there were 16 deaths, and from consumption, 9.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Mortality reports from 109 cities, towns, villages, and sanitary districts, having an aggregate population of 788,073, show 1021 deaths from all causes during June. This corresponds to a death-rate of 1.29 per 1000, or 15.48 per annum.

There were 136 deaths due to consumption, 58 to pneumonia, 24 to bronchitis, 5 to congestion of the lungs, 17 to diarrhoea and dysentery, 33 to cholera infantum, 63 to other diseases of the stomach and bowels, 22 to diphtheria, 7 to croup, 14 to scarlatina, 7 to measles, 5 to whooping-cough, 14 to typhoid-fever, 3 to malarial-fevers, 8 to cerebro-spinal-fever, 1 to erysipelas, 34 to cancer, 89 to diseases of the heart, 6 to alcoholism, and 475 to other causes.

San Francisco, 330,000 : J. W. Keeney, M.D., Health Officer. The total number of deaths during the month of June was 526—179 under five years of age, and 48 among the Chinese. The annual death-rate per 1000 was 19.08. There were 80 deaths from zymotic diseases, and 64 from consumption.

CONNECTICUT—Professor C. A. Lindsley, M.D., Secretary, New Haven.

Annual Report of the State Board of Health for the year ending November 30th, 1891, with the Registration Report for 1890.

The population of the State, according to the recent census, is 746,258. There were 17,394 births registered, representing a birth-rate of 23.3 per 1000.

The total mortality was 13,665, and the death-rate 18.3 per 1000—the highest since 1882, when it was 18.7.

The deaths from zymotic diseases numbered 2658, of which small-pox caused 12; measles, 18; scarlatina, 67; influenza, 185; typhoid-fever, 312; diphtheria, 435; croup, 122; whooping-cough, 137, and diarrhœal diseases, 1090.

Consumption caused 1544 deaths.

There were 3702 deaths of children under five years of age.

The "Health of Towns," comprising the reports from correspondents in the several towns of the State, in answer to a series of questions propounded by the Secretary, shows that there was no notable epidemic in the State during the year. There were outbreaks of limited extent and duration, in several places, of typhoid-fever, scarlatina, diphtheria, and diseases that are endemic, but no excessive prevalence of any disease.

Among the papers published with this Report of special interest is *The Origin of Certain Cases of Typhoid-Fever from Money Island*, by H. E. Smith, M.D., of the Medical Department of Yale University, showing an instance of typhoid-fever originating in one locality from a given water supply, and the victims, separating during the stage of incubation to widely distant parts of the country, suffering simultaneously from the fever. Another paper of interest is by L. S. DeForest, M.D., of New Haven, on *Tuberculosis as a Local and Contagious Disease in New Haven*, founded on a careful investigation of the prevalence of tuberculosis in New Haven during a period of fifteen years. A special study has been made of the frequency with which the disease has recurred in the same dwelling houses.

The Report is also valuable as containing the concluding report on "The Examination of Certain Connecticut Water Supplies," by Drs. Williston, Smith, and Lee.

These very important investigations, of which this is the third report, have been interrupted by the failure of the Legislature to organize and make the necessary appropriation for their continuance.

The mortality report for June has been received from 167 towns in the State.

There were 892 deaths reported during the month. This was 255 less than in May ; it was 85 less than in June, 1891, and 4 more than the average number of deaths in June for the five years preceding the present.

There were 225 deaths under five years of age. The death-rate was 14.1 for the large towns ; for the small towns, 12.7, and 13.6 for the whole State. The deaths from zymotic diseases were 179, being 20.0 per cent of the total mortality against 13.5 per cent in May. The deaths from consumption numbered 96.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer. In the five weeks ending July 30th, 1892, there were 934 deaths, of which number 410 were colored, and 471 were under five years of age.

The annual death-rate was 38.83 per 1000.

From zymotic diseases there were 385 deaths, and from consumption, 73.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

The Third Annual Report of the State Board of Health is received, and from it we take the following figures : Total mortality for the year 1891, 2470, of which 1087 cases were in the colored population, and 801 were of children under five years of age.

The death-rate per 1000 was 13.22. The population is not given.

From measles there were reported 16 deaths ; from diphtheria and croup, 9 ; from typhoid-fever, 161 ; from malarial diseases, 87 ; from heart diseases, 108 ; and from consumption, 342.

Jacksonville reported 583 deaths during the year, and Pensacola reported 258.

Pensacola, 15,000 : R. W. Hargis, M.D., President.

The mortality during the month of July was 17, of which 8 were of the colored population, and 6 were under five years of age.

Annual death-rate per 1000 was 13.6.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Typhoid-Fever in Chicago.—William T. Sedgwick (a) and Allen Hazen (b)* have recently issued a brochure of twenty-one pages, summarizing and comparing the statistics of typhoid-fever with other American cities. It is especially important, they remark at the outset, that the sanitary condition of Chicago in 1893 should be above reproach, because that of Philadelphia in 1876 was not. Yet it does not appear to have been generally recognized that within the last two years, and especially within the last nine months, typhoid-fever has been unusually prevalent in the city of Chicago.

By comparing the population of Philadelphia in 1876 with the number of deaths from typhoid-fever, we find that the death-rate from this disease for the Centennial year was remarkably high, namely, 9.36 per 10,000 inhabitants. The percentage of all deaths, due to typhoid-fever, was also very high, namely, 4.09. Since 1876 there has been a great increase in the population of Philadelphia, and, therefore, in the annual number of deaths, but the number of deaths from typhoid-fever per annum has never been as great as in that year, excepting once, and that only after twelve years, in 1888.

In the city of Chicago there has been for many years a large amount of typhoid-fever. It was abundant, for example, in 1872, in 1881, in 1885, and in 1886. Between 1886 and 1890, however, it was less common; but in 1890 the death-rate from typhoid-fever suddenly rose to a height almost exactly the same as that reached by Philadelphia in 1876, namely, to 9.16 deaths per 10,000 of inhabitants, and 4.16 per cent of all deaths which occurred in that year. In

* (a) Professor of Biology, Massachusetts Institute of Technology, Boston.
(b) Chemist in Charge, Lawrence Experiment Station, Lawrence, Mass. Reprinted from *Engineering News*, April, 21st, 1892.

other words, typhoid-fever prevailed as extensively in Chicago in 1890 as in Philadelphia in 1876. The actual number of deaths in Chicago in 1890 from typhoid-fever was 1008. Remarkable as these figures were, they proved to be only the prelude to others still more remarkable in 1891. During the year just ended, Chicago has reported 1997 deaths from typhoid-fever, giving the prodigious death-rate for this disease of 16.64 per 10,000 of population, and a percentage of all deaths of 7.19. In the month of May alone there were in Chicago 408 deaths from typhoid-fever, or very nearly one half as many as in the whole State of Massachusetts during the entire twelve months of 1890, and very nearly two thirds as many as in London, with more than four millions of people, during the whole of the previous year.

In the single month of May, 1891, there were more deaths from typhoid-fever in the city of Chicago than in the city of New York during the whole twelve months of either of the years 1888, 1889, 1890, or 1891. In 1891 there were 385 more deaths from typhoid-fever in Chicago than were reported by the State Board of Health for the previous year in the whole State of New York, with five times the population, and nearly 1400 more deaths than in London, with three and one half times the population of Chicago.

In this connection the following table, which gives the populations and the number of deaths from typhoid-fever in the cities and States named, is instructive :

	Population in Round Numbers.	Deaths from Typhoid-fever.
Baltimore, 1891.....	455,000	140
Boston, 1891.....	459,000	154
Cincinnati, 1891.....	300,000	186
New York City, 1888... ..	1,536,000	364
“ “ “ 1889.....	1,583,000	397
“ “ “ 1890... ..	1,631,000	352
“ “ “ 1891.....	1,700,000	384
Philadelphia, 1891.....	1,092,000	684
State of Massachusetts, 1890.....	2,239,000	835
London, England, 1890.....	4,421,000	619
State of New York, 1890....	6,000,000	1,612
Chicago, 1891.....	1,200,000	1,997
Baltimore, Boston and Cincinnati, 1891.....	1,214,000	480

Chicago, with almost exactly the same population, had in 1891 more than four times as many deaths from typhoid-fever as Baltimore, Boston, and Cincinnati combined.

As has just been stated, the whole number of deaths from typhoid-fever in Chicago in 1891 was 1997. If we multiply this number by ten we shall have an approximate estimate of the whole number of persons affected by this disease during the year, namely, about 20,000—indicating that more than $1\frac{1}{2}$ per cent of the whole population of Chicago were affected in 1891 by a disease which is classed as preventable.

It does not seem likely that these extraordinary figures can be surpassed or even maintained in 1892 or 1893, but as an indication of the sanitary condition of Chicago, they must be a source of anxiety to its citizens, as they certainly are a menace to the sanitary success of the World's Fair.

INDIANA.—C N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines.

Burlington, 30,166 : Total deaths in June, 24. Annual death-rate per 1000, 9.48.

Cedar Rapids, 24,000 : Total deaths in June, 11. Annual death-rate per 1000, 6.96.

Council Bluffs, 35,000 : Total deaths in June, 17. Annual death-rate per 1000, 5.40.

Des Moines, 62,000 : Total deaths in June, 38. Annual death-rate per 1000, 7.32.

Dubuque, 35,000 : Total deaths in June, 28. Annual death-rate per 1000, 8.4.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored : Deaths in four weeks ending July 23d, 1892, 516, representing an annual death-rate of 26.49 per 1000. Of the total mortality, 178 were colored, and 173 were under the age of five years. 99 deaths were from zymotic causes, and 63 were from consumption.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary.

The total deaths during the month of July were 1479, an increase of 383, compared with the corresponding month of July, 1891. Of these, 1159 were whites and 320 colored—a death-rate of 36.22 per 1000 for the former and 54.08 per 1000 for the latter. The death-rate per 1000 for the whole population was 39.00. 31 died from infectious diseases, 89 from consumption, 30 from pneumonia, 337 from cholera infantum, 65 from enterocolitis, 47 from dysentery, and 41 from diarrhœa, and 103 sun-stroke. 833, or 56.25 per cent of the total deaths, were in children under five years of age.

During the month 271 cases of infectious diseases were reported, a decrease of 527 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 749 deaths reported in June, of which number 227 were under five years of age. The annual death-rate per 1000 was 19.13. There were 104 deaths from zymotic diseases, and 90 from consumption.

MICHIGAN, Henry B. Baker, M.D., Secretary, Lansing.

For the month of July, 1892, compared with the preceding month, the reports indicate that puerperal-fever, cholera infantum, cerebro-spinal meningitis, cholera morbus, inflammation of brain, typhoid-fever, diarrhœa, dysentery, remittent-fever, and whooping-cough increased, and that scarlet-fever, diphtheria, pneumonia, influenza, measles, pleuritis, and bronchitis decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was the same (southwest), the velocity was less, the temperature was higher, the rainfall was 1.73 inches less, the absolute and the relative humidity were slightly less, the day and the night ozone were considerably less, and the

height of ground above the water in the well at Lansing was two inches less.

Compared with the average for the month of July in the six years 1886-91, membranous croup was more prevalent, and small-pox, measles, influenza, dysentery, cerebro-spinal meningitis, cholera infantum, intermittent-fever, whooping-cough, typho-malarial-fever, cholera morbus, diphtheria, and remittent-fever were less prevalent in July, 1892.

For the month of July, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was the same (southwest), the velocity was less, the temperature was slightly higher, the rainfall at Lansing was 1.38 inches more, the absolute and the relative humidity were more, the day and the night ozone were considerably less, and the height of ground above the water in the well at Lansing was one inch more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of July, 1892, at forty-four places; scarlet-fever, sixty-four; typhoid-fever, thirty-eight, and measles at nineteen places.

Reports from all sources show diphtheria reported at twenty-five places less, scarlet-fever at thirty-seven places less, typhoid-fever at four places more, and measles at twenty-three places less in the month of July, 1892, than in the preceding month.

Detroit, 220,000: S. P. Duffield, M.D., Health Officer. During the month of June there were 392 deaths, of which number 102 were under five years of age. The annual death-rate per 1000 was 21.69. From zymotic diseases there were 124 deaths, and from consumption, 22.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

The mortality for the month of May was 859 from all causes, in a total population of 1,301,826.

There were from tuberculosis, 98 deaths; from diphtheria and croup, 49; from pneumonia, 80; from bronchitis, 38; from enteric-fever, 12; from scarlatina, 18; from whooping-cough, 9; from measles, 18; from diarrhoeal diseases of children, 17; and from influenza, 4. The annual death-rate per 1000 was 8.14.

St. Paul, 150,000 : H. F. Hoyt, M.D., Commissioner.

There were 127 deaths reported during June, of which number 53 were under five years of age. From zymotic diseases there were 14 deaths, and from consumption, 7. Annual death-rate per 1000, 10.16.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent.

There were 117 deaths during the month of June, of which number, 36 were under five years of age. Annual death-rate per 1000, 10.5. Zymotic diseases caused 8 deaths, and consumption, 16.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Paterson, 80,000 : J. L. Leal, M.D., Health Officer.

During the month of June there were 115 deaths, of which number 52 were under five years of age. Annual death-rate per 1000, 17.25. From zymotic diseases there were 30 deaths, and from consumption, 9.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany.

The Secretary reports the returns of deaths that have been received for June give an average daily mortality of 302, the lowest of any month of the year, the daily average of the preceding months being 368 ; there has been a steady decrease from the abnormally high rate of 434 in January, when the *la grippe* epidemic was at its height. There continue to be reported deaths from the results of this disease, though not in sufficient number to materially affect the average mortality. There is an increase in the percentage of infant mortality since May of 5 in each 100 deaths, and it is higher than the average for June by 3.4 in each 100 deaths. The deaths from infectious diseases are higher in proportion than in May, but less

than the average for June ; the relative mortality from these causes is about the same as in June of last year. From measles there is no increase in the number of deaths ; from scarlet-fever and diphtheria there is a material falling off in the mortality, and in other zymotic diseases there is no change from that recently reported except in diarrhœal diseases, in which there is the customary increase of fatality ; this increase, however, is about 200 less than it was last year, and the number of deaths from this cause is not as great as in former years for the month of June by about the same number ; 7.48 per cent of the deaths were from diarrhœa. There were 10 deaths from small-pox in New York and vicinity, and 5 from typhus-fever. There were 1005 deaths from consumption, 11.1 per cent of the total mortality, against 11.6 in May. The death-rate of the State for the month (6,337,500 population reporting) is 17.42 per 1000 ; from zymotic diseases, 3.23 ; from consumption, 1.90. In 148 cities, villages, and large towns, the aggregate population of which is 4,661,300, the death-rate per 1000 is 19.73 ; 42.3 per cent of the deaths occurred under five years of age ; in each 100,000 population there were 14 deaths from diarrhœa, 6 from diphtheria, and 18 from consumption. In the remaining portions of the State the death-rate was 10.00 per 1000 population ; 13.7 of the deaths occurred under five years, and in each 100,000 population there were from diarrhœa, diphtheria, and consumption respectively 1.3, 1.5, and 10.5 deaths.

New York, 1,801,739 : Total deaths, 3544—1750 under five years. Death-rate, 23.92. Zymotic diseases per 1000 deaths from all causes, 242.10. Deaths from consumption, 376.

Brooklyn, 957,163 : Total deaths, 1518—712 under five years. Death-rate, 19.30. Zymotic diseases per 1000 deaths from all causes, 213.45. Deaths from consumption, 145.

Albany, 97,120 : Total deaths, 178—55 under five years. Death-rate, 21.89. Zymotic diseases per 1000 deaths from all causes, 227.80. From consumption, 23.

Syracuse, 91,944 : Total deaths, 121—30 under five years. Death-rate, 15.80. Zymotic diseases per 1000 deaths from all causes, 158.28. From consumption, 18.

Buffalo, 278,796 : Total deaths, 395—153 under five years. Death-rate, 17.14. Zymotic diseases per 1000 deaths from all causes, 152.50. From consumption, 99.

Rochester, 144,834 : Total deaths, 163—43 under five years. Death-rate, 14.97. Zymotic diseases per 1000 deaths from all causes, 124.85. From consumption, 24.

Sunstroke.—The following is a list of the deaths reported from sunstroke in New York during the heated term : Week ending June 4th, 2 ; 11th, 3 ; 18th, 16 ; 25th, 6 ; July 2d, 2 ; 9th, 0 ; 16th, 8 ; 23d, 2 ; 30th, 90 ; August 6th, 160 ; first five days of week ending August 13th, 7 ; total, 296.

The following report of the Sanitary Committee of the Board of Health was approved, published, and distributed by the Board in July :

Sunstroke is caused by excessive heat, and especially if the weather is "muggy." It is more apt to occur on the second, third, or fourth day of a heated term than on the first. Loss of sleep, worry, excitement, close sleeping rooms, debility, abuse of stimulants, predispose to it. It is more apt to attack those working in the sun, and especially between the hours of eleven o'clock in the morning and four o'clock in the afternoon. On hot days wear thin clothing. Have as cool sleeping rooms as possible. Avoid loss of sleep and all unnecessary fatigue. If working indoors, and where there is artificial heat—laundries, etc.—see that the room is well ventilated.

If working in the sun, wear a light hat (not black, as it absorbs heat), straw, etc., and put inside of it on the head a wet cloth or a large green leaf ; frequently lift the hat from the head, and see that the cloth is wet. Do not check perspiration, but drink what water you need to keep it up, as perspiration prevents the body from being overheated. Have, whenever possible, an additional shade, as a thin umbrella when walking, a canvas or board cover when working in the sun. When much fatigued do not go to work, but be excused from work, especially after eleven o'clock in the morning, on very hot days, if the work is in the sun. If a feeling of fatigue, dizziness, headache, or exhaustion occurs, cease work immediately, lie down in a shady and cool place ; apply cold cloths to and pour cold water over head and neck.

Any one overcome by the heat should be immediately removed to the nearest shade, and the collar of shirt or dress should be loosened. *Send immediately for the nearest physician*, and give the person cool drinks of water, black tea or coffee, if able to swallow.

If the skin is hot and dry, place the person in a sitting position against a tree, wall, or anything that will be a support to the back ; sponge with or pour cold water over the body and limbs, and apply to the head pounded ice wrapped in a towel or other cloth. If there is no ice at hand, keep a cold cloth on the head, and pour cold water on it as well as on the body.

If the person is pale, very faint and pulse-feeble, lay him on the back, let him inhale ammonia for a few seconds, or give him a teaspoonful of aromatic spirits of ammonia or tincture of ginger in two tablespoonfuls of water. Use no cold water upon the head or body, but rub the hands and feet and apply warm applications to the same until the circulation is restored.

NORTH CAROLINA.—Thomas F. Wood, M.D., Secretary, Wilmington.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Toledo, 90,000 : A. W. Fisher, Health Officer. The Annual Report for 1891 shows that there were 1383 deaths from all causes. Death-rate per 1000, 15.37. There were 311 deaths from zymotic diseases—119 less than in the previous year, and 145 deaths from consumption. During the month of June, 1892, there were 93 deaths, of which number 28 were under five years of age. Annual death-rate per 1000, 12.4. Zymotic diseases caused 25 deaths, and consumption, 11.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer.

In the four weeks ending July 23d, 1892, there were 2080 deaths, of which number 1078 were under five years of age. Annual death-rate, 24.8 per 1000. Deaths from consumption numbered 168.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar. During the four weeks ending July 23d, 1892, there were 477

deaths, of which 261 were under five years of age. Annual death-rate, 24.21 per 1000. Zymotic diseases caused 135 deaths, and consumption, 31.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville.

The principal diseases, named in the order of their greater prevalence, in the State for the month of June were : Dysentery, malarial-fever, diarrhœa, typhoid-fever, whooping-cough, consumption, scarlet-fever, and measles. Typhoid-fever was reported in the counties of Davidson, Decatur, Fentress, Franklin, Hamilton, Humphreys, Knox, Robertson, Rutherford, Sullivan and Wilson ; whooping-cough in Chester, Cocke, Davidson, Humphreys, Knox, Lincoln, Maury, McNairy, Shelby, Stewart, Weakley and Williamson ; consumption in Davidson, Hamilton, Knox, Lincoln, Maury, Montgomery and Shelby ; scarlet-fever in Davidson, Dyer, Hamilton, Madison, Shelby and Wayne ; measles in Dyer, Hamilton, Rutherford and Weakley.

TEXAS.—R. M. Swearingen, M.D., Secretary, —Austin.

VERMONT.—J. H. Hamilton. M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M. D., Appleton.

Milwaukee, 234,400 : U. O. B. Wingate, M.D., Health Officer. For the month of June there were reported 276 deaths,

of which 123 were under five years of age. Annual death-rate per 1000, 14.13. Zymotic diseases caused 20 deaths, and consumption, 7.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

PANAMA—Island of Naos, Panama Bay, July 2, 1892.

Editor of THE SANITARIAN :

I wish I had something interesting to write you about this dull part of the world, but there is nothing professional or otherwise worthy of mention. Since the collapse of the *canal* project, Panama has become duller than it ever was before, and is almost as dead a town as Pompeii, as far as business is concerned. For some time it has been quite healthy, and not a case of malignant fever has been heard of in several months. No doubt its causes still exist ; but the reduction of the population has diminished the *materies morbi*. The sanitary condition of the city has been somewhat improved ; many of the streets have been repaved and are regularly swept by the prisoners from the jail ; several small plazas have been renovated and enclosed by iron railings, the walks cemented, seats provided, trees and plants set out, so that they now present quite an ornamental and pretty appearance. Music by a military band twice a week serves to enliven the assemblage of the people in the plazas, and at present no prospect of a "revolution" seems to disturb public tranquillity. But as long as Panama is destitute of a proper system of sewerage and an adequate supply of water, particularly in the "dry season," it must continue to be liable to disease. An electric tramway is about to be started, and will add to the convenience of the public. As I don't believe any "vital statistics" are ever kept in the place, I am unable to give you any information in regard to them.

C. H. WILLIAMSON, M.D.

CHOLERA.—The advance of cholera from the East, notwithstanding the measures instituted in Russia to check its progress, and the recent action taken by the sanitary authorities of European seaports to prevent its further progress, urgently indicates the necessity of the utmost vigilance by the sanitary authorities of American seaports.

American health officers should not be deceived by bills of health, or thrown off their guard by reported deaths from other diseases. Every emigrant ship at least should be treated as a suspected source of cholera until thorough inspection of the ship and of every person and everything on board has been actually *found* to be or *made* clean, and, moreover, measures to this end should not be wanting. The disgraceful condition of the New York quarantine establishment five years ago, though successfully supplanted by extemporized measures, should be a lasting admonition not only to those who were or who may be hereafter responsible for it, but equally to health authorities everywhere. While all may profit by knowledge of such devices to some extent, they should never be depended upon. A quarantine that is not equipped for emergencies is a misnomer; quarantine is essentially an institution equipped against emergencies—always ready for action.

Cholera reports by the most recent cablegrams to the time of this writing, August 15th :

St. Petersburg, August 14, 1892.—Returns from the whole of Russia for the 11th inst. show a large increase in the number of new cases, as well as in the mortality. There were reported 9177 new cases and 5009 deaths.

Persia—London, August 15.—The *Times'* Teheran correspondent reports :

“ The mortality in Tabriz is estimated at 3000. The cholera epidemic is raging there with great severity. The governor and the wealthiest inhabitants have fled, and the town is deserted. The mortality in Teheran is about 150 daily. There have been no deaths among Europeans here, and the cholera cases are only mild.”

Great excitement has been caused in London through a discovery made by the health authorities in examining a shipment of rags that was being landed. The examiners found

many bundles of the rags that had come from districts infected by cholera, and they were ordered to be burned at once.

The vessel bringing the cargo sailed from a German port, but the infected articles were the gathering of a wide territory. In several bundles examined the contents were so repulsive as to make only the most casual investigation possible or necessary.

The Proceedings and Conclusions of the International Sanitary Conference, held at Venice, in June last, for the purpose of devising means to protect Europe from epidemic diseases, and especially from the invasion of cholera by way of the Suez Canal, as reported by M. le Doctor Brouardel, dean of the Faculté de Médecine to the Academy of Sciences, as published in *Le Progrès Médical*, July 2d, 1892, are as follows :

M. Brouardel gave a complete history of quarantine, and showed that as a means of protecting nations against epidemics it has become a mere delusion, when many thousands of people are congregated at a place so much frequented as the Suez Canal, and he demonstrated that under such circumstances it became necessary to have recourse to the means supplied by modern scientific inventions, if the safety of Europe was to be considered of paramount importance. In view of the fact, so frequently demonstrated, that the disease is propagated by the evacuations, by the clothing, etc., there is but one practicable means to be employed to destroy the germs—that is, disinfection by means of superheated steam. In 1890 similar means employed for disinfecting on the Spanish frontier preserved France from the epidemic.

These views, ably supported by the representatives of France at the Conference of Venice, have been accepted by all the nations represented. Even England, which contended to maintain free pratique for the vessels carrying her flag on the canal, notwithstanding the frequent communication with the people on the banks, finally consented to accept the proposition.

In consequence of the articles signed, every vessel coming from an infected country, or having cholera patients on board, must stop at the entrance of the canal and undergo a complete disinfection. Among the ships coming from the extreme Orient none will be allowed to pass except those that have

had no deaths on board within eight days and have no case on board on arrival.

To insure the efficient application of these measures, the number of Egyptian representatives have been reduced from nine to four, so that no one power, by combining with Egypt, can have a controlling influence.

In conclusion, Mr. Brouardel expressed the hope that a rigorous surveillance would be exercised on the Persian Gulf and on the frontiers of Russia. It is only by a vigorous application of these measures that it will be possible to preserve Europe from cholera and other great epidemics.

M. le Professor Proust has made a similar communication to the Academy of Moral and Political Sciences. He has also given the history of sanitary conferences.

SANITARY INSPECTION OF EMIGRANTS AT PORTS OF DEPARTURE.

ASSISTANT SECRETARY OF THE TREASURY SPAULDING, who has recently returned from a European trip, will, it is said by a *Herald* interviewer, August 14th, shortly issue new regulations governing the manner in which the emigrant business to this country is to be handled. It is expected there will be some important changes contained in the new regulations. General Spaulding went abroad especially for the purpose of personally seeing how the emigrant business for this country is handled in Europe. His investigation of the subject was very thorough and complete. Speaking of his trip recently, as reported in the *New York Herald* August 16th, Mr. Spaulding said :

“ I had very little time to devote to pleasure while in Europe, as almost every moment was taken up with mastering the details of the manner in which shipments of emigrants are made from Europe. I first went to Hamburg, where I found the steamship people had excellent arrangements for the examination and shipment of emigrants. In the first place, the German Government causes a thorough examination by their own government surgeons to be made of all people coming from Russia at the German frontier, and they allow none

to pass into their country who come from infected districts or who are liable to bring disease into Germany. The German emigrants, or the people who emigrate from Germany, whether they are Germans or not, are, on their arrival at Hamburg, placed in boarding-houses under the control of the German Government. There they are examined by German medical officers and also by surgeons of the steamship company. When the time for going on board ship comes, the emigrants are taken to the premises of the steamship company and there examined in the presence of the vice-consul by two surgeons who have the approval of the American consul.

"At this examination, all who might be classed as doubtful are stopped. The others are then placed on board ship. Before they go aboard, however, they are taken to a large building erected by the steamship company, with all modern appliances and conveniences, with concrete floors, ample sleeping accommodations, and good kitchens for preparing food. There they are also obliged to take a bath. Just off the bathrooms are disinfecting-rooms, where the clothing of these people is taken, put through a disinfecting process, and returned to them. These conditions they must comply with in every particular, and in every case before they can go aboard the ship.

"I went also to Bremen, Rotterdam, Antwerp, and Liverpool. At Bremen I found practically the same condition as at Hamburg, and in fact at nearly every place visited the same condition prevailed, though perhaps differing some in detail. At Rotterdam the same examination by surgeons is made, and their reports are certified to by the consul at that place. There are now building some very fine buildings there for the same purpose as the Hamburg building. At Liverpool the examinations are also very thorough. At that place the examinations are conducted by the steamship companies without any requirement of law. I believe the companies desire to comply with the laws of the United States. Then again business considerations forbid their taking these people on their ships to bring to the United States, only to carry them back again at their own expense in case they are rejected here. Besides, they cannot afford to have disease break out on ship-board for the credit of their line."

“During your absence, Mr. Secretary,” I asked, “did you observe any desire on the part of some of the steamship companies to evade the law, or did you discover any instances of carelessness on their part in receiving emigrants?”


“No,” said Secretary Spaulding. “On the contrary, I found an earnest desire to comply with our laws, and found nothing whatever indicating a desire to evade them. There is one difficulty experienced which has caused us some trouble. Many of the emigrants come here by ‘tramp’ steamers and avoid the regular lines. However, I am of opinion that I will be able to make arrangements which will bring them within the same regulations as apply to the other companies, who have, as a matter of fact, voluntarily adopted them themselves. In other words, I think that under the law the Secretary of the Treasury is authorized to make regulations which will fully control the subject, and that any further congressional legislation will not be necessary. The information I have collected will be especially valuable for preparing the regulations which will shortly be issued by this department.”

“What is your opinion regarding the proposition for locating a board of government inspectors at the various ports of embarkation abroad for the purpose of examining emigrants to the United States?”

“I do not know that this country would be authorized to go into a foreign territory and locate its inspectors, but that is a matter for Congress to determine. With the regulations I shall make we shall be able to impose as a condition of their admission to this country that they shall comply with certain requirements which will meet the circumstances. As I have said, I do not think there is any occasion for further legislation at this time.

“As a rule our laws are respected in Europe. Take the Germans, for instance. They have the greatest respect for the laws of this country; and the people who compose the steamship companies are men of high character and standing, and they have no desire in any petty way to evade the law. On the other hand, they are extremely anxious to comply with each requirement which the United States see fit to make. They only want to know what these requirements are.”

EDITOR'S TABLE. 2

 ALL correspondence and exchanges and all publication for review should be addressed to the Editor, Dr. A. N. BELL, Brooklyn, N. Y.

BROOKLYN STABLE NUISANCES are of a piece with those of Gowanus Canal and Newtown Creek ; indeed, greater, because, not like those of the canal and creek, limited to certain localities, but scattered throughout the city.

Stables in cities, as elsewhere, are a necessity, because people cannot do without horses ; and these faithful servants of mankind deserve to be well cared for in cleanly places, both out of consideration for the horses and for the people.

There is no need whatever that a stable should be a nuisance anywhere, and when it is so, the fault is

Firstly, in the building and maintenance ;

Secondly, and chiefly—to the public—the process of removing the manure previously stored in vaults or bins, or kept in heaps in the stable.

Plank floors to stables are a common nuisance to the neighborhood on account of the noise and stench—the wood absorbs the urine and other liquid filth and speedily becomes foul and stinking ; the ground underneath (drainage being the rarest condition of Brooklyn stables) becomes saturated with the leakage, and the putrefaction there set up and maintained evolves gases alike noisome and unhealthful to the horses and to persons who breathe them.

Stables in basements—many with their ceilings on a level with and some below the street pavement—with areas for manure, insufficient light and impure air, protected by gratings, are inconsistent with public decency and healthful conditions to the people round about and to the horses kept within. Tight vaults or bins for manure storage and putrefaction, and long-kept heaps in the stables, and the “health regulations” (!) in practical effect throughout Brooklyn, for the removal of the previously accumulated manure to wagons in the streets,

firstly, to the pavement, and thence pitched into the wagons with a good deal of scattering round about, requiring to be again raked and piled on, filling the air of the neighborhood during the process with ammoniacal vapors compelling the people to close their windows!—such are the conditions and “regulations” of stables with which the citizens of Brooklyn are disgustingly familiar, and particularly during the hot summer mornings, when they would otherwise like to have their windows open for a breath of fresh air before the dust is astir.

The *horse* is a noble, sensible, and sensitive animal. He knows more and suffers more than most people think, and he should be treated with more tenderness and humanity, even independently of consideration for the health of the people. Commodiousness, cleanliness, and ventilation are primary conditions of stables for the health of horses and freedom from nuisance to persons living in the neighborhood of stables.

It has been ascertained with approximate accuracy by observation and experiment that a horse to be healthy requires eight thousand cubic feet of fresh air hourly, and that this amount cannot be supplied without dangerous draught in less than sixteen hundred cubic feet of space; and this estimate, it should be borne in mind, is based upon the spoiling of the air by respiration and cutaneous exhalation; it takes no account of uncleanly conditions, which, if present, add to the deterioration. It is generally conceded that, under ordinary circumstances, every adult man renders absolutely irrespirable five cubic feet of air hourly; and that to purify this amount and maintain the highest degree of practical purity in his immediate surroundings, not less than three thousand cubic feet of fresh air per hour is required—six hundred times the amount spoiled by respiration. Compare this and man's breathing capacity with that of the horse, and the need of stable space for horses at once becomes apparent.

But horses are even more sensitive to some foul gases, if not indeed to all, than men. For instance, to sulphuretted hydrogen—that which is evolved from the bilge water of a filthy ship—a man will stand with comparative impunity, for a considerable length of time, an atmosphere containing one part of this gas in two hundred and fifty, while half as much will quickly sicken and, if long persistent, kill a horse.

The gases evolved by the putrefaction of the excreta of horses are *poisonous*, like the gases evolved from the putrefaction of any other animal matter. Yet there are some persons so foolish as to assert that the odor of a stable is healthful, just as there are some dunces who think that the smell of a sewer or a privy vault is of no consequence.

The urine of horses contains about six times as much putrescible matter as the dung, and is therefore six times more dangerous, and the more because it soaks into the floors, if they are permeable, and into the ground beneath. Wells in the vicinity of such stables have frequently been found so impregnated with ammonia as to smell and taste of it. Clearly, therefore, no stable should be tolerated without an *impervious floor*.

Such a floor, comparatively noiseless, can be constructed of asphalt or cement at little if any more cost than of wood. *All stables should be carefully drained*, and all liquids from them should be discharged into the sewer with as much care as the sewage from any house for human habitation. Tight vaults and bins for manure storage and long-retained heaps of manure in stables, promotive of its putrefaction, should be rigidly prohibited. Bins, if allowed at all—better that they should not be, only under restricted conditions—constructed of iron bars, as cages, so as to admit of the free exposure of the contents to the air, situated in the coldest available place, and emptied sufficiently often to anticipate putrefaction. Even heaps of manure, if allowed to lie long, are liable to ferment, and then when disturbed to give off strong ammoniacal vapors. This result of ammoniacal emanations and consequent loss of the most valuable fertilizing property of stable manure may be almost wholly averted by frequently wetting the manure with a solution of copperas or dilute sulphuric acid, with the additional advantage of increasing its commercial value. Finally, the process of handling the manure with a view to its removal should be wholly done *in the stable*.

Why stables should have ever been permitted to deliver manure over the pavement to wagons in the streets was probably due, in the first place, to the tolerance of basement stables, with areas outside for manure storage, at a period before there was any health organization in the city, and when

the number of dunces who believed in the wholesomeness of manural emanations was greater than that of intelligent and decent people ; but that such stables and such practices should be tolerated now is alike disgraceful to the health authorities and the community.

LITERARY NOTICES AND NOTES.

DIAGNOSIS, the art of recognizing and interpreting morbid symptoms and determining their significance in distinguishing one disease from another, and from occasional variations in the vital functions not inconsistent with health, is the most necessary knowledge to every medical practitioner. Hence the adaptation of this knowledge to easy acquisition by medical students, as has been done by the accomplished authors of a book before us,* supplies needful place in the scope of every medical student's library. It is not intended, however, to take the place of, but to direct the student what to look for at bedside studies, and to fortify him against errors in diagnosis, which are always fraught with dangerous results. Both the authors are eminent practitioners, of much clinical experience, which they have made good use of in so arranging and classifying the symptomatology of disease as to demonstrate its necessity to every student, and to present one of the most lucid works on the subject hitherto published.

THE CORRECT PRONUNCIATION OF MEDICAL TERMS is the first difficulty encountered by the medical student, and if neglected is sure to make him the subject of derision by his more careful fellows, and the laughing-stock of scholars outside of his profession scarcely less than of those within it. Moreover, the advances in medicine and its congeners during recent years has been so rapid as to add many new words and so many changes in terminology as to make it necessary for every student and practitioner who would keep wholly abreast with these changes to cover and take notes of an extensive

* *Essentials of Diagnosis, Arranged in the Form of Questions and Answers. Prepared Especially for Students of Medicine. By Solomon Silas-Cohen, M.D., and Augustus A. Eshners, M.D. With fifty-five illustrations. Price, \$1.50. Philadelphia: W. B. Saunders.*

field of contemporary literature. To abridge this labor it affords us much satisfaction to add a new volume to our library—a voluminous and exhaustive handbook of medical and scientific terminology, with phonetic pronunciation, accentuation and etymology.* It also contains important tables of Bacilli, Micrococci, Leucomaines, Ptomaines, etc., comprising a most complete and accurate dictionary of terms used in medicine and the collateral sciences; while, by leaving out numerous obsolete terms which overload most of the medical dictionaries heretofore published, the volume is of such a size as to be convenient for use—a royal 8vo, beautifully printed and admirably gotten up in all respects.

SMITHSONIAN REPORTS FOR 1889, a volume of over nine hundred pages, is chiefly devoted to the condition of the United States National Museum and Zoological Park, comprising a dozen or so of special papers describing and illustrating the collections in the Museum.

Report for 1890, besides giving a general account of the progress of the Institution, with maps and descriptions of the National Zoological Park, contains thirty-two papers on scientific subjects, for the most part by distinguished authors, and several of them elaborately illustrated. For example: Progress of Astronomy for 1889, 1890, by William C. Winlock, collated from reviews in the various branches of astronomy contributed by specialists throughout the world.—Physical Structure of the Earth, by Henry Hennessy, F.R.S., from the *L. E. D. Philosophical Magazine*.—Glacial Geology, by Professor James Geikie, F.R.S., summarizing the results obtained by geologists who have been studying the peripheral areas of the drift-covered regions of Europe, and adducing evidence to show that the drifts of those regions are not iceberg-droppings, as before supposed, but true meteoric matter

* A New Pronouncing Dictionary of Medicine. By John M. Keating, M.D., Fellow College of Physicians of Philadelphia; Visiting Obstetrician to the Philadelphia Hospital, and Lecturer on Diseases of Women and Children; Gynæcologist to St. Joseph's Hospital; Surgeon to the Maternity Hospital, etc.; Editor "Cyclopædia of Diseases of Children;" and Henry Hamilton, Author of "A New Translation of Virgil's *Æneid* into English Rhyme;" co-author of "Saunders' Medical Lexicon," etc. Price, cloth, \$5; sheep, \$6. Philadelphia: W. B. Saunders.

and fluvio-glacial detritus.—History of the Niagara River, by G. K. Gilbert, from its beginning—as deduced from geological studies and estimates—during the final retreat of the great ice sheet, or, in other words, during the series of events that closed the age of the ice in North America, illustrated by outline maps showing the changes that have been effected in its progress.—The Mediterranean, Physical and Historical, by Sir R. Lambert Playfair, showing how the commerce of the world originated in a small State at its eastern extremity, how it gradually advanced westward till it burst through the Straits of Gibraltar, and extended over seas and continents until then undreamt of, an event which deprived the Mediterranean of that commercial prosperity and greatness which for centuries had been limited to its narrow basin.—Stanley and the Map of Africa, by J. Scott Keltie, with maps showing Central Africa before Stanley and Central Africa after Stanley, and a concise description of Stanley's discoveries.—Chemical Problems of To-day, by Victor Meyer: the doctrine of structure, the synthesis of organic compounds, the revolution in technicological processes, etc.—Temperature of Life, by Henry De Varigny, the generation of heat by organic life, and the influence exerted upon that life by the theometric variations to which it may be subjected.—Weismann's Theory of Heredity, by George J. Romanus, a brief sketch of his several theories arranged in a manner calculated to show their logical connections one with another, and the relation in which his resulting theory of heredity stands to Darwin's and others theories upon the subject as hitherto published.—The Ascent of Man, by Frank Baker, M.D., a concise summary of the leading issues of anthropology and of recent progress made in its study.—Antiquity of Man, by John Evans, F.R.S., a consideration of the antiquity of the earliest objects hitherto found which can with safety be assigned to the handiwork of man; and eight other papers on anthropological subjects.

SCHOOL HYGIENE, a brochure of twenty-eight pages,* is

* Read before the Hamilton and Renfrewshire Branches of the Educational Institute of Scotland. By P. Caldwell Smith, M.A., M.D., D.P.H., Cambridge, Lecturer on Hygiene and Public Health, Anderson's College Medical School, etc. Reprinted from the *Sanitary Journal*. Glasgow: Printed by Alexander Macdougall, 81 Buchanan Street.

an admirable contribution to one of the most important subjects with which sanitarians are called upon to contend. It concisely comprehends the chief conditions indicated by the title: Site, construction, furniture, water-supply, sanitary fixtures, drainage, warming, ventilation, time, physical exercise, infectious diseases, disinfection.

The following extract on ventilation is illustrative, and is particularly pertinent to the discussion of Drs. Thayer and Reed on other pages of this and previous numbers:

"A few remarks regarding position and kind of inlets.—These should always be made so that the air on entering is directed upward, and should be placed as low as possible. It is always better to have a coil of hot-water pipes in the inlet, so that in winter the air may be heated before entering the room. These inlets may be best situated in the spaces in front of the windows, and in a large number of hospitals this method is adopted. Mr. Robins, in his work on 'Technical School and College Building,' approves of this method of introducing fresh air. Other and more elaborate systems are also advocated, but I am of opinion that the above is in most cases amply sufficient for all purposes. If, however, the air is not passed over hot-water pipes, Tobins' tubes may be used, and the air introduced into the room somewhat higher, say six to eight feet from the floor. The windows should always of course be utilized for inlets when the scholars are out.

"Position and nature of outlets.—Outlets should be placed at the roof, and the tubes should, as far as possible, be straight. If bent, then the loss from friction lessens the amount of air passing through. A good example of an outlet is the open-fire chimney, and the amount of air which escapes by the chimney is often sufficient to produce very fair ventilation if inlets are provided at suitable places and of sufficient size. The outlets most commonly used are exhaust ventilators, such as Buchan's, the wind blowing across this causing an upward current in the pipe. In this ventilator provision is made for the prevention of a downward current by inserting automatic silk valves, which close at once when the air current is reversed. The velocity of the air in these can be tested readily, and it has been found that, according to the velocity of the wind, the velocity varied from two hundred and fifty

to seven hundred lineal feet per minute. Another form of outlet sometimes used in schools is that called the under-ridge ventilator. Valves are provided which shut on windward side, but are open on leeward. Other forms of hidden ridge ventilators are used, but I do not think it necessary to enter further into an explanation of their working, as the first form of outlet is much more satisfactory.

“The inlets for fresh air and the outlets should be made of the same size, or the inlets may be made slightly larger in area; but each inlet should not be larger than from forty-eight to sixty inches.”

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION, at its fifteenth annual meeting, held at Washington, 1891, George Thomas Jackson, M.D., Secretary, New York, constitute a pamphlet of eighty-eight pages, comprising some thirty papers illustrating the advantages of and the progress made by this organized specialty, of much practical utility to all physicians.

TEMPERAMENT is the thermometer by which the tone of the brain is to be ascertained. By the eye, the curling locks, the complexion, the pulse, all the movements of the individual, we are to determine whether the brain is like soft metal or the Damascus blade, the dull, spongy charcoal or the glittering gem. Developed in one region, and having the true temper, and moral influences favoring, a Howard is formed to make “the circumnavigation of charity.” Developed in another region, and allowing a bad education or the spirit of a barbarous age to confirm and strengthen the bad tendency, an Attila comes forth to desolate and to curse. The twig is bent by nature, certain tendencies are innate; education, in its broad sense, may control, improve, subdue, almost eradicate. The predisposition is given, is sometimes inherited, sometimes comes as the wind blows, we see not whence. It was before the propitious gale of benevolence that Howard pursued the voyage of his illustrious life. Ambition is the headlong current by which warriors and statesmen, the mighty men of the earth, have been swept along the tumultuous sea of human affairs.—*Professor David W. Yandell,*

M.D., Doctorate Address of the Medical Department of the University of Louisville, Session of 1891-92.

"LIFE TO THE EUROPEAN PEASANT," says the writer of a paper called "The Benediction," in the August number of the *Atlantic Monthly*, "is less complex, because more clearly defined, than to the New England farmer. The outward conditions of existence are practically the same for the whole village; it is not a life into which half the population have drifted by chance, and which they expect to give up for something else; it is the life which their fathers have led before them, which they themselves expect to lead to the end of the chapter, and to hand on to their children. There is less loneliness than with us, less eccentricity and morbidness, and there are no such cases of mental alienation due to other than physical causes. The peasants have their noses to the grindstone; practical questions and actual happenings fill their horizon. They live more frankly and constantly before the eyes of their neighbors, peasants, and strangers than our farmers are ever called upon to do, but they do not seem to live to the same degree with a view to their neighbors' opinion. They take things more simply, and are virtuous or vicious more as a matter of course. During half of every year their country is invaded by hordes of beings who spend without working, and who take possession of the whole landscape before the face of men and women who work from year to year without getting aught to spend. That the peasants go on their way with so little heed to these interruptions speaks something for their independence of character. Except in certain parts of the Oberland, where it has been introduced by lavish tourists and become an unmitigated nuisance, begging is little known in Switzerland."

DISCIPLINING THE MIND.—*Harper's Bazar* well says: "If for a moment we could lay aside the thought of the established routine which we have become accustomed to calling education, we should, I think, easily see that facts about things which we do not come in contact with are not helpful, while they usurp the place of those things which are needed for every-day life. Do you say they discipline the mind and

strengthen memory? This is the reason given for many of the arbitrary rules and studies in the schools, but this is assuming that what is uninteresting and dry is better for development and as a preparation for life than are those things which are gratifying and agreeable. The body can only be fully nourished by eating such food as is pleasant to the taste. The nerves of sensation must be pleasantly excited to secure perfect digestion and assimilation, and it is a serious mistake in our ideas of education that we fail to recognize this beautiful law in intellectual processes.

“There is a deal of nonsense about discipline of the mind, of the will, and of the body. Life is, or ought to be, for all normal human beings a continual discipline of brain, body, and will, and the means for this discipline are furnished in the needs and processes of life. Our failures come from not recognizing these processes, or from being out of place. In either case we are out of harmony with the ‘inflowing universe,’ and so fail to get our discipline in God’s own way. Then we formulate our arbitrary methods to supply the place of the natural order, very much in the same way as artificial limbs, teeth, and other organs are supplied by science when the natural ones have failed us from carelessness, accident, or disease.

“This false and exaggerated idea of our responsibility in furnishing discipline first grew out of the belief that the human being is all wrong till we set him right, and though total depravity is practically a thing of the past, yet the opposite theory—that the child is right till we lead him wrong by our false estimates of values—has failed to find its way very generally into old avenues of thought, still less have we learned to follow and obey nature, and thereby transform our educational system from arbitrary and unattractive methods to those which meet glad acceptance—glad, because the brain in its natural condition enjoys its supply of knowledge as the body enjoys its food. The flowers bloom and fruits ripen when we make the conditions right for them, and then let them alone to revel in the operations of unerring and beneficent law.”

THE HUMAN IN LITERATURE.—Concerning short stories, Walter Blackburn Harte contributes an article to the *New*

England Magazine for July, in which he says : " The New Testament is filled with beautiful stories—stories which, coming from the great Socialist Master to illustrate the gospel of humanity and the divinity, equality, and inter-dependence of all men, contain two new elements, which ever since have been the essentials of all great literature—viz., an all-embracing pity and an encompassing charity. In a word, Christ introduced the distinctly human, the pathetic, into his parables. There is a hint of this same quality in Chapter XII. of Ecclesiastes ; but the Homeric literature and the literature of Christ's time, while rich in tragedy of a Titanic abstract kind, and sometimes in comedy, is lacking in this subtle fragrance of the pathetic, which lifts the characters out of the realm of mythology and fancy into humanity. This quality of the pathetic and human is the supreme, the perennial, without which the Titanic in literature is a miserable failure, however great the art may be. A literature which is a thing apart from human life, which lacks the power of touching our pity and sympathy, and so creating a kinship among all peoples, cannot be vitally great for all time. It may live, and be dug into by scholars to whom yesterday's battle of Bull Run does not appeal at all, but who fight all their lives before Troy ; nevertheless, mere Titanic loves and fights cannot reach the great heart of humanity. Shakespeare and Homer differ in just this. Shakespeare read hearts, and he always gave us the kernels of motive and action ; Homer gave us the actions of giants lacking in souls. Shakespeare is an external conscience, the solution of the riddle of ourselves and others ; Homer is a hippodrome in which all is external and nothing is real."

OF CHILDREN'S SAYINGS the *Popular Science Monthly* for July says : " It is a wise mother that does not unduly stimulate the self-consciousness of her child, and thus lay the foundation for lifelong habits of affectation. If clever children do not always make clever men and women, a partial reason may be found in the way they are commonly treated. They find grown-up people constantly on the watch to hear, and most industrious in repeating, their original speeches ; and soon they exchange the gift of originality which consists

in seeing and expressing things in an unconventional manner, for the very inferior one of making smart speeches. They are thus forced by the very admiration of their elders into taking conventional instead of unconventional views, and speaking, as it were, to the "gallery" instead of uttering spontaneous truths. Thus—

"Shades of the prison-house begin to close
Upon the growing boy"

or girl altogether too soon. The way to promote originality is to leave the mind as long as possible in direct and living contact with things, and, to do that, it is necessary to avoid any great appearance of interest in or astonishment at the judgments the child forms or the phrases it uses. As soon as a child begins to find its own *opinions* interesting, instead of, as before, finding *things* interesting, farewell to originality! Will any one say that, if girls were taught how the minds of children might be kept fresh, they would not value the knowledge and, when the time came, try to turn it to account? We hardly think so."

SIGHT is the most blessed of all the five physical senses. Blindness, or the thought of blindness, seems like a living death, and only those who have experienced the fear can understand it. Do not take any risks with your sight. Do not experiment or allow others to experiment with your eyes if they are weak or failing. Economy of money at the risk of losing your eyesight is foolishness. The eye is one of the most delicate of organs, and easily ruined and the sight destroyed. There is no excuse for negligence in the matter; there is no use to try home or cheap remedies. If your sight is failing, if your eyes are out of order, hesitate not for a moment, but consult a competent oculist at once, and seek none but the best. Sight is too valuable and precious to be trifled with. Those who have suffered will tell you the misery entailed. There are hospitals where the eyes are treated free in many cities by the best oculists, so it is not a question of money. And the warning cannot be repeated too often—do not trifle with your eyesight under any consideration.—*Harper's Bazar*.

HOW TO LEARN A LANGUAGE IN SIX MONTHS, the subject of an article in the July *Review of Reviews*, proved so popular that it has been followed up in the August issue by a contribution on the same subject from the pen of the veteran Professor Blackie, of Edinburgh, who fully endorses and adds strength to the doctrines set forth in the previous article, which all who would know how should read.

THE BITE OF A SNAKE.—The heads of most of the venomous snakes, including the "rattlers," bulge just beyond the neck. Without exception they have fangs, either always erect or raised and laid back at will. These fangs are long, sharp-pointed teeth, with a hollow groove running their entire length. At the root of each fang is a little bag of poison. When the snake bites, the motion presses the poison-sac, and its contents flow down through the hollow in the tooth into the puncture or wound. The harmless little forked tongue is often spoken of by the uninformed as the snake's "stinger." Now, there is no propriety in the name, as the poisonous snakes do not sting, but *bite* their victims. There is no creature, even if brought from foreign countries where "rattlers" do not exist, but will halt and tremble at the first warning sound of the rattle.

Dr. S. Weir Mitchell, with others, has been making experiments with the venom of different serpents. He has found that, aside from its poisonous qualities, it contains living germs, which have the power of increasing enormously fast. So, you see, when an animal is bitten, these tiny bits of life, entering with the poison, cause harmful action to begin almost at once. Dr. Mitchell has found that the nervous centre controlling the act of striking seems to be in the spinal cord, for if he cut off a snake's head, and then pinched its tail, the stump of its neck turned back, and would have struck his hand had he been bold enough to hold it still.—*August St. Nicholas*.

PAMPHLETS, REPRINTS, REPORTS, ETC., RECEIVED.

The Infliction of the Death Penalty by Means of Electricity—being a report of seven cases. Carlos F. MacDonald, M.D.,

President of the New York State Commission in Lunacy, New York.

Bethlehem and Maplewood—a Contribution to the Medical Climatology of the White Mountains, with Special Reference to their Exemption from Hay-Fever. W. H. Geddings, M.D., Aiken, S. C.

Hepatic Abscess. William A. Edwards, M.D., and James Lears Waterman, M.D., San Diego, Cal.

Herniotomy. B. M. Ricketts, M.D., Cincinnati, O.

Cerebral Atrophies of Childhood. *Philanthropic Index and Review*. Kalamazoo, Mich.

Plums and Cherries. *Horticultural Bulletin* 38. L. H. Bailey, Cornell University Experiment Station, Ithaca, N. Y.

Cases of Tubercular Osteo-Myelitis of Tibia ;

Comparative Value of Mercury and the Iodides in Treatment of Syphilis ;

Some Effects of Blennorrhœa in Women ;

Carcinoma of the Uterus : Papers read before the State Medical Society of Arkansas by J. T. Jelks, M.D., of Hot Springs, Ark.

Second Year's Work in Diseases of the Rectum at the New York Post-Graduate School. *Ibid.*

ANNOUNCEMENTS.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The twentieth annual meeting of the American Public Health Association will be held at the city of Mexico, Mexico, November 29th, 30th, and December 1st and 2d, 1892.

The session will continue four days, and owing to the expected large number of papers, the Association will, probably, for the first time, do its work in sections. Prominent sanitarians and scientists from the United States, Canada, Mexico, and the Central and South American republics will take an active part in the meeting.

Papers will be received, under the by-laws, upon any subject relating to the public health ; but the Executive Committee have voted to invite and to give preference to papers on THE MOST DANGEROUS COMMUNICABLE DISEASES.

All papers (in English) to be presented at the meeting must be in the hands of the Secretary not later than October 1st. This rule must be observed. The object is to give ample time to have them translated. Every paper will be presented in both English and Spanish. Papers will be read in the language of the author, while a translated copy will be furnished (at the time of reading) to those who do not understand the language in which the paper is being read. Papers written in Spanish must be forwarded not later than the date above stated, to Dr. Eduardo Liceaga, Chairman Local Committee of Arrangements, Mexico.

Full information on routes and rates of travel, hotels, entertainments, etc., may be expected in the October SANITARIAN.

DR. O. W. PECK, Health Officer of the town and village of Oneonta, N. Y., has recently had conferred upon him the honorary degree of Master of Arts by Hamilton College at Clinton. The honor, though unsought, is most worthily bestowed, Dr. Peck being a graduate of the Medical Department of Yale University, an enthusiast upon the subject of sanitation, and an incisive and ready writer upon themes connected with his profession. *The Herald*, whose columns have often been enriched by his contributions, joins with Oneonta folk generally in congratulating Dr. O. W. Peck, A.M. Since the above was written Dr. Peck has been notified that the Yale Medical Society, an Association of Medical Alumni of Yale, had elected him its president.—*Oneonta Herald*.

THE WORLD'S COLUMBIAN EXPOSITION.—For fifty cents Bond & Co., 576 Rookery, Chicago, offer to send postpaid a four-hundred page advance guide to the Exposition, with elegant engravings of the grounds and buildings, portraits of its leading spirits, and a map of the city of Chicago; all of the rules governing the Exposition and exhibitors, and all information which can be given out in advance of its opening. Also, other engravings and printed information will be sent you as published. It will be a very valuable book, and every person should secure a copy.

THE FOOD MANUFACTURERS' ASSOCIATION OF NEW YORK propose to celebrate the discovery of America in their own way, assisted by representatives from every State and Territory in the Union, at Madison Square Garden in October. It is proposed at this Exposition to show the progress made by this country in the last four hundred years as regards our food supply. The United States is the greatest food-producing country in the world, and as food is the one thing above all others that first claims the attention of the human family, it is safe to predict that the coming Exposition will prove one of the most interesting events of the century.

Only food products will be allowed on exhibition, exhibitors being restricted to manufacturers or producers, no dealer as such being allowed to participate. Every article of food exhibited must bear the *bona fide* name and address of manufacturers, all fictitious brands being rigidly excluded. Liquors, specifics, and patent medicines will not be allowed. Every manufacturer exhibiting must guarantee that his goods at the Exposition are the same as is offered for sale to the public.

Miss MARIA PARLOA, of Boston, the distinguished lecturer in the art of cooking, and the best and most favorably known in her profession in the United States, will have entire charge of that department of the Exposition. The concert hall of Madison Square Garden, the handsomest public hall in this country, has been secured for that purpose, where Miss Parloa will lecture and give practical demonstrations in cooking every afternoon during the Exposition. It is proposed to precede each of these lectures with a concert by the Seidl Orchestra, with Herr Anton Seidl personally conducting. It is confidently believed that these concerts and lectures will prove the most popular feature of the Exposition, and that they will be crowded at every performance by the *élite* of New York society.

DANIEL BROWNE, *Secretary*,
Hudson and Harrison Streets, New York.

ADVERTISERS in THE SANITARIAN will please bear in mind that the certificates and letters of persons calling themselves physicians not known to the editor to be of good standing in the medical profession will not be admitted to its pages.

THE SANITARIAN.

OCTOBER, 1892.

NUMBER 275.

CHOLERA.

MEASURES FOR ITS PREVENTION AND MANAGEMENT IN
BROOKLYN.

ABSTRACT OF STENOGRAPHIC REPORT OF SPECIAL MEETING
OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS,
HELD SEPTEMBER 6TH, 1892.*

INTRODUCTORY REMARKS.

IN opening the meeting, Dr. Z. T. EMERY, President, said :

GENTLEMEN : You have been called together at this special meeting to consider a subject which is engrossing the attention of the whole country, and especially of the cities about the port of New York. It is confidently expected that the gathering of medical men to-night will serve as a notice to the citizens of Brooklyn that their advisers in matters pertaining to health are keenly alive to the possible dangers which threaten their welfare, and that they propose to be instantly ready with measures to prevent the occurrence of this disease in our midst, or if, unhappily, it should make its appearance among us, to be ready to grapple with it and stamp it out immediately.

WORK OF THE DEPARTMENT OF HEALTH IN ANTICIPATION
OF CHOLERA, AND PLANS FOR ITS MANAGEMENT IN THE
EVENT OF ITS INTRODUCTION.

By JOHN GRIFFIN, M.D., Commissioner of Health.

It is, of course, a question of the highest importance that has been submitted to you for discussion to-night, and perhaps

* From special edition of the *Brooklyn Medical Journal*.

from no others than you would words that would restore public confidence come so well. There is a great deal of panic, a great deal of excited feeling in the community, and the fact that you, their trusted guides in protecting their lives and in dealing with citizens and their private ailments, have taken charge of this matter, will tend to allay apprehension. No matter how serious or how grave our fears may be of the approach of this disease, or how much we may share it in common, yet we must consider the question calmly, and deal with it in a practical spirit. It is no use, in my opinion, to say to the general public that things are at their worst, that we are not prepared for such an emergency, and that the mere appearance of cholera means the decimation of the people—you know and I know that it is not so. If it be possible to have introduced into this community—which I hope it is not—any case of that dread disease, we shall be able to deal with it as we have done in the past. To my mind, never before has either this city or its associate, New York, been better prepared to meet an epidemic and stamp it out than at present.

With the quarantine regulations strict as they are, and rigidly enforced as they are by the present officer in charge, if through inadvertence a case should be transmitted through the gates of our harbor and reach either city, we shall deal with it, I trust, in an intelligent spirit, and in such a way as to effectually relieve public alarm.

I do not propose to address you in any formal way upon the topic that has been presented, but rather to go over in a general manner the workings of our department, and illustrate to you what facilities we have for dealing with a transmitted case if any should arise in this community. It has been said that the city at present is not in a cleanly condition. I desire to positively and distinctly take issue with that assertion. In every great community, in every large and populous centre, there must be bad spots, there must be conditions of uncleanness, there must be places that cannot be subjected to the tests that you and I would apply to the better portions of the city. On all sides of this city, or, at all events, on three sides of it, you have existing from the very foundation of the city, water-courses that necessarily have become foul, disease-pro-

ducing and filthy, which unfortunately our predecessors in charge of this community have failed to give due attention to, and anticipate evils that have in a measure come upon us because of them. You have, on the southern boundary of the city, a water-course known as Gowanus Canal. I need not repeat its many charms nor the harm that may emanate from it.

In the central portion of the city you have two creeks, Wallabout Creek and Bushwick Creek, which are both foul and filthy. On the extreme eastern border you have the larger water-course of Newtown Creek, which is foul and filthy beyond description, and which should have been abated long ago. These things have not arisen upon us, but come now to aggravate the difficulty of dealing with the question of cholera. I point out these things to you in all frankness, so you may appreciate, as I have done, the difficulty of dealing with practical questions in a great city. The main streets of this city are now in a cleaner condition than I have observed them for many years. That does not by any means mean that the streets are clean in the sense that you or I would desire them to be. Perfectly clean streets can only be obtained by a thorough cleaning and sweeping daily, for which purpose a large amount of money is needed, and a much more liberal appropriation than has heretofore been made. In the more densely populated parts of the city there are certain wards to which I would call your attention. Colonies of Polish immigrants, Jews, and the poorer classes from Central and Eastern Europe have located, some in the Twenty-sixth Ward, and formed a settlement known as Brownsville. That section of the city is now unprovided with sewers, has imperfectly graded streets, has very little distribution of water, and the condition of the people resident there is necessarily not of the best. Similar colonies of these people exist in the Sixteenth and Fourteenth wards; in the Sixteenth particularly, intermingled with the large class of more reputable and more solid representatives of the community—Germans; in the Fourteenth Ward, in the neighborhood of the great sugar refineries, and the great manufactories, and in the Thirteenth, Fifteenth, and portions of the Seventeenth wards, immediately adjoining this odorous creek that I have spoken of a moment ago. Colonies

of Italians have located themselves in the lower portion of the Second Ward, in the neighborhood of Adams Street, Front Street, York Street, etc. ; Navy Street in the vicinity of Prospect, York, and some other contiguous streets ; Navy and Raymond streets in the vicinity of Johnson and Tillary streets. In the First Ward in State Street and Columbia Street, in the Sixth and Twelfth wards in the neighborhood of Hamilton Avenue, Sackett Street, and the streets south of that line. In the Third and Tenth wards in the neighborhood of President Street and Carroll Street there is a mass of population that is not in the most cleanly condition. These are practically the plague spots of the city. We have been giving them our attention, but we cannot root out the people in these shanties and tenements and enforce any rule of sanitation to limit the number of occupants of any apartment or any house, as it would simply be spreading this class of population which would necessarily aggregate again, which seems to be the tendency of these people, and would require a much longer time to break up again.

The Street Cleaning Department, upon my appeal, and upon the instance of the mayor of the city, has taken upon itself increased activity, and has urged upon the representatives of its various departments a wider and more enlarged effort, and I have assurances that within a day or two all of these places that I have referred to will be fairly cleaned and swept up. While awaiting such action by another department of the city, under my direction, sprinkling carts to the number of eight have been sent into these various neighborhoods, and some sixteen or twenty men with sprinkling cans have been directed to enter the alley-ways, court-yards and halls, and the various apartments in these houses. Notice has been given to the owners that they must exercise great diligence and great care in the maintenance of their property, and that special attention must be given to whitewashing and other means of cleanliness that such premises call for. I think in a general way that would be about as much as I would care to say upon the state of the city at present.

Another important matter is the disposition of shipping and the discharge of cargo from arriving vessels. You are all familiar with the restraints in vogue at Quarantine. The de-

tention by the representatives of that department, the careful examination of vessels, particularly at the present time, the disinfection of all material on board, as well as the equipment of men. The passenger vessels are subjected to particular restraints, which have been abundantly described in the papers. Our more particular concern is as to the discharge of cargoes. At an early period of the season of the arrival of vessels from infected ports, I notified the existing officers of the department, and consented to a discharge of rags, hides, and skins from vessels lying at our piers into lighters alongside. These permits were based on the letters issued by the Quarantine Officer and upon special permits issued by him or his representatives, as to the character of the rags, and as to their entire freedom from any contagious disease. His action was largely controlled by consular certificates accompanying each consignment which represented as a matter of knowledge on the part of the consul giving such certificate, that these rags were collected in sections of the country absolutely free from contagious disease. Supplementing that action of the Quarantine Officer, we deemed it necessary to obtain from every captain, surgeon, or other accredited officer of the vessel an affidavit reciting more in detail the circumstances of the voyage, the history of their experience from their point of departure and their ports of call, until arrival in the harbor of New York. As soon as the warm weather was upon us, and before the suggestion of the spread of the disease from the extreme eastern portion of Europe and Russian territory had come to us, I directed that for the future no rags should at any time be discharged from vessels at the piers; that none should be admitted to be placed in storage, but that all should be immediately placed in lighters for removal to their destination at the mills. There was no permission given to detain batches or parcels of goods which were frequently sent here on speculation to secure a purchaser, and they were sent to the mills and subjected to special treatment. That order I have further modified, and have absolutely refused to permit the landing of rags at any time in this city at any of our piers. As a further precaution I deemed it necessary, in view of the detention of these vessels recently at Quarantine, to communicate with the immigration officers at Ellis Island, and to

have forwarded to the Department of Health the names of all immigrants that might arrive at Brooklyn, in order that we might be able to take further observation of them. We have not had any case that even simulated cholera in this city during the past week.

A word, perhaps, might be profitable as to the manner of conducting the work in the department by the inspectors. We have available for inspection in this city, which we have divided into five districts, five sanitary inspectors, whose especial duty it is to look after contagious diseases and assist generally in making the inspections, but more particularly to examine suspicious or doubtful cases of contagious disease. They are aided by sixteen assistant sanitary inspectors, who perform their duty in a manner that is no doubt known to you all and approved by you, from the fact that I have heard but very little complaint of the gentlemen exercising that duty. There are eleven plumbing inspectors, whose duties in a general way may be described as making examinations of new buildings, examining work as to progress, making a final inspection, and report as to the strength of the materials, the capacity of resistance, and the general quality of traps and other apparatus belonging to the work. Further, they investigate complaints as to defective plumbing in houses, leaky pipes, breaks in wastes, cellars that may become damp and foul because of such leakage, etc. We have nine general sanitary inspectors, who make examinations of yards, apartments, vaults, cesspools, and everything of that nature. During the summer we have had twenty-five inspectors appointed to visit the poorer sections of the city, attend upon sick children, administer to their wants and prescribe for them, and to procure the necessary medicines, and in special cases give such other assistance as may be needed. Incident to these duties they were to take note of the general interior of the houses, and of the defects existing, and make such return to the department that an examination would be immediate, and such remedy as possible procured through the courts. In our department we have no summary jurisdiction. When we see a case that is in need of immediate remedy, we have to wait and bring the matter into the courts, and obtain redress by legal means, and thereby lose valuable time.

This summer corps ordinarily terminates its service at the close of the summer—generally September 1st—but at present the general disturbance of public sentiment and the possibility of the introduction of this dread disease into the city has induced me to continue its services for another month, and I am authorized by the proper authorities of the city to incur the necessary expense. These gentlemen are now occupied in aiding the other inspectors in following up offensive places, searching out the cause of complaint, and applying such remedy as they can. Every proceeding for the abatement of a nuisance in the city must be by complaint. The commission of a nuisance is a misdemeanor, a violation of an ordinance, and the offender or accused person must be taken to court and the question tried as a matter of fact. Upon proof the magistrate imposes a suitable penalty or dismisses the case upon promise of removal of the cause. In the present instances the magistrates have consented to hear such complaints daily, and instead of the usual course in such cases to impose at once a summary sentence. I think this will strengthen our hands, though out of a great number of complaints within the past week a mere notification to the persons interested, property owners and others has been, in the great majority of cases, attended to without the necessity of taking such matters into court. Within the week I have deemed it necessary to appeal to the police authorities for additional aid in the carrying out of the work of our department, more particularly the inviting of police officers in their patrol to note the little things as well as the great things which occur, all of which in the aggregate go to make up the offensive features of our daily experience in the city. As instances of the energy with which they are now at work, within the last two days we have received nearly three thousand complaints, petty in many instances, but needing attention of one kind or another. I have issued a circular to the police force calling their attention more particularly to the enforcement of particular ordinances. I have had a copy of it made so as to be handy for convenient reference. I did not wish to cumber the programme with too much matter, unless it should divert the attention of the police from that to which their attention was specially invited. Within the last week I have issued a

circular to the public of like nature to that presented in the New York papers, culled principally from text-books, summarizing the general principles that you impart to your patients.

With a view to preparation for the possible coming of this disease, for we cannot entirely disregard the admonition we have, for the nearness of it now in our outer harbor admonishes us to be, if possible, more active than in the past. I have secured two barges, which, fitted up as hospital vessels, may be placed at convenient points on the shore. It will not be advisable nor practicable to place them at any point along the East River, because of the narrowness of the stream and the possibility of other vessels coming in contact with them, so we are somewhat limited as to the convenience of location for such vessels. I have also, in conference with others, looked up three sites at three different points in the city at which it might be possible to locate on the shortest possible notice temporary shelter in the shape of tents, either of canvas or the patent contrivances so often presented to us for approval. I have also invited to a conference the representatives of the hospitals of the city, and I am happy to say that with one accord and in the most positive way they expressed their readiness to aid in any manner in meeting the emergency that has arisen. Of course I have pointed out to them that at any moment a case of cholera might arise in the city, that it might be in their neighborhood or in their midst, that it might arise either among their patients or among their attendants, that it might be conveyed to them by an ambulance and the diagnosis made within their premises, and that immediately some disposition should be made of such patients. But it was not necessary to dwell upon that feature of the question; they unhesitatingly offered all of the accommodations and conveniences of their institutions for the reception of any cases that might arise in their neighborhoods. Two of the larger hospitals are specially favored in the possession of large and extensive grounds, where temporary accommodation could be afforded without serious inconvenience to the other inmates, and where the most perfect isolation could be offered for the smallest expenditure of money. I felt no hesitation in assuring these gentlemen if any expenditure was

necessary that the city would meet it. These two hospitals are the Brooklyn Hospital and Seney Hospital. Each of the other hospitals has expressed its readiness to make such provisions as its limited quarters would admit of, and, if necessary, would abandon a whole ward for the accommodation of such patients as might be presented to it. In one instance, that of St. Peter's, after the gentlemen representing it had departed, I was summoned to the telephone and had word from that hospital that they would at once donate a ward for the reception of any patients that might come, tendering the services gratuitously of the Sisters of that institution to wait upon the patients on the cholera barges.

I do not know, Mr. President, that I can add much more to the desultory description of our work, save to say that I hope to have the cordial and generous support of the members of the Medical Society of the County of Kings in the prosecution of such efforts as may be necessary for the protection of the public health and the protection of their patients.

Dr. J. H. Raymond offered the following resolution, which was seconded by Dr. Charles Jewett and unanimously adopted :

Resolved, That the Medical Society of the County of Kings heartily commends the efforts made by the Commissioner of Health of the City of Brooklyn to prevent the introduction of cholera into Brooklyn, and pledges him its hearty support and co-operation.

BACTERIOLOGY OF CHOLERA AND METHODS OF DISINFECTION.

By GEORGE M. STERNBERG, M.D., Deputy Surgeon-General U. S. Army.

As I understand it, I am expected to say something to you about the etiology of cholera and about its disinfection. Of course, it is not necessary to describe the "comma bacillus" of Koch—you are all familiar with it. I may say, however, that at the present time bacteriologists all over the world are pretty thoroughly convinced that this is the special etiological agent in cholera. Koch at first met with many opponents, who claimed to have found micro-organisms under different circumstances which were identical, but these claims were not proven. The comma bacillus found in the mouth by Lewis proved not to be in any way identical, and numerous observ-

ers have made cultures from the salivary secretions of man, but no one has ever cultivated from the mouth of man a spirillum which liquefies albumen like that of Koch. In reference to comma bacilli in the intestines and their presence in other diseases, numerous bacteriological studies which have been made of the fæces of persons in health and persons with various diseases have utterly failed to demonstrate the presence of anything corresponding to Koch's comma bacillus, or as we now call it, the spirillum of Asiatic cholera. This spirillum grows readily in the presence of oxygen, and also in the absence of oxygen, as it must do to thrive in the intestines. I shall not stop to dwell upon its characteristics in culture media, but I will say that it does not form spores, and consequently is very easily destroyed. Indeed it is one of the most easily destroyed of all the pathogenic organisms known. It grows readily in a variety of organic media. Milk is a very favorable medium, but it does not grow in acid media. A slightly alkaline medium is most favorable for its growth. It grows very readily in bouillon, which is diluted with eight or ten parts of water, and it also multiplies to some extent in sterilized river or well-water. Experience shows that there is sufficient organic pabulum in ordinary river or well-water for the multiplication of this particular micro-organism. In water which is rich in organic pabulum, and consequently contains numerous other common organisms, it dies out, as these take the precedence, so it would apparently multiply more rapidly in water not containing a large amount of organic material than it would in sewage. Koch found in his earliest investigation that this spirillum grows readily on moist linen, or the soiled clothing of patients. In experiments made by Bolton in 1886, he found that it multiplied in distilled water to which bouillon was added in the proportion of fifteen to twenty-five parts in the thousand. The thermal death point of the cholera spirillum I fixed myself some years ago at 52° Centigrade, which is 125.6° Fahrenheit. Kitasato has since made experiments, and places it a little higher, at 55° C. There seems to be a difference in cultures in different media, but ten minutes' exposure to 55° C. will suffice. Sixty degrees C. is a good figure to remember, that is, 140° F., and ten minutes' exposure to this temperature may be relied upon for the destruction of

this spirillum ; so if your milk or water has been heated up to that point you are safe. In giving our directions to the public, we usually say boil your water for half an hour.

Another very important point about these particular micro-organisms is the fact that they are so quickly destroyed by desiccation. Koch found in his early experiments that a few hours' exposure in dry air, when the culture was spread upon a glass cover, were sufficient to kill it. Since that Kitasato has taken up the subject, and has found that it may live for a longer time if the stratum has some thickness. If you have a very thin film upon your cover-glass the spirilla die very quickly when simply dried in the air. If a thicker layer is used, they may live for a longer time. Under certain circumstances, when he had a thick film from an agar culture Kitasato found that they lived even as long as thirteen days, but ordinarily they only survived desiccation from a few hours to twenty-four hours.

Now, therefore, in regard to articles coming from abroad that have been ten days or more on the steamer—merchandise, mails, etc., I can hardly understand how clean merchandise in original packages or mails could become infected. The mails might easily become infected by scarlet-fever or small-pox from convalescents. We know very well that something from the surface of the body of such persons might get into letters written by them, and be transmitted in that way, and yet we very rarely hear of that sort of thing happening. We do not attempt to fumigate our mails on account of small-pox, and in the case of cholera, where the germ is in the intestine, even if a sick person sat up and wrote a letter, the chances are that the letter would not convey any infection. I therefore think that all this insistence upon disinfecting the mails and merchandise is going a little too far in that direction, especially as we know the biological characters of this particular micro-organism, and know that it is quickly killed by desiccation.

In regard to the value of various disinfecting agents, innumerable experiments have been made in this country and in Europe by competent observers. In a culture in bouillon, twenty-four hours old, experiments made in Koch's laboratory show that it is killed by hydrochloric acid, $\frac{1}{1300}$; sulphuric

acid, $\frac{1}{1000}$; methyl violet, $\frac{1}{1000}$; carbolic acid, $\frac{1}{400}$. These experiments were made, however, under different conditions from those which would obtain in practical disinfection. For practical purposes the experiments made by Bolton for the Committee on Disinfectants, under my direction, several years ago, are more reliable. In Bolton's experiments the spirilla were killed in two hours by mercuric chloride, $\frac{1}{10000}$; sulphate of copper, $\frac{1}{500}$, and carbolic acid, $\frac{1}{200}$, and one per cent solution of carbolic acid will destroy the spirillum with great certainty in such cultures in two hours.

The methods of obtaining and testing the presence of the cholera spirillum in suspected dejecta I will not dwell upon now, but I want to call your attention to the measures recommended by the International Sanitary Conference which assembled in Rome in 1885. When cholera last prevailed in Southern Europe, the Italian Government invited the countries of Europe and America to send delegates, supposed to be experts in sanitary matters, to an international conference, for the purpose of considering measures of prophylaxis against cholera. The conference met in Rome on May 23d, 1885, and had daily sessions until June 7th. A Committee on Disinfection was appointed on my motion. This committee consisted of Dr. Koch, of Berlin, Dr. Sonderegger, of Switzerland, Dr. Hoffman, of Vienna, Dr. Thorne Thorne, of England, Dr. Semmola, of Italy, Dr. Proust, of France, and myself; and the report, which was made after very careful consideration, was adopted unanimously by the conference, so that it is the most authoritative report published, although I believe a majority of health officers in the United States are not familiar with it. I made a translation of this report, which was published in the *Marine Hospital Report*, volume of 1886.* It recommends as a means of disinfection against cholera, besides destruction, steam at 100° Centigrade, carbolic acid, chloride of lime, and aëration. Carbolic acid and chloride of lime were to be used in aqueous solution as follows: carbolic acid, two per cent; chloride of lime, one per cent (called the weak solutions); carbolic acid, five per cent; chloride of lime, four per cent (called the strong solutions). These means of disinfection were to be applied as follows:

* Also published in THE SANITARIAN, Vol. XV., 1885.—EDITOR.

For the disinfection of persons, one of the weak solutions should be applied. For the disinfection of clothing, bedding, and similar articles, the direction is given that steam should be passed through the articles for one hour.

Steam and dry heat, as you know, are two very different matters. There has been a great deal of bad practice on this subject. Certain persons, having read that 60° C. kills the spirillum, have taken it for granted that if an oven is heated up to somewhere about 100° C., the cholera spirillum will certainly be destroyed. But Koch's experiments, made upon other similar organisms having about the same resisting power, show that if dry heat is used the temperature must be carried up to 220° or 230° F. Learning that 220° to 230° F. is required, and ignorant of the fact that it was dry heat that was meant, some authorities have directed that steam should be used at that temperature, which gives you a very great pressure and makes it impracticable. As a matter of fact, 100° C.—the boiling point of water and temperature of live steam—is all that is required. It must, however, be freely admitted to the chamber in which the articles to be disinfected are placed and must come in contact with them. If I were in charge of a quarantine establishment, and were disinfecting a quantity of things, and was satisfied that live steam had been in contact with every article thoroughly for five minutes, I would be satisfied that the disinfection was complete—a great deal more so than if a lot of articles were tumbled in together and left for an hour exposed to the action of steam, for in this case some of the articles might not be disinfected at all, as the steam does not penetrate readily into the interior of such a mass. This is an important point in using steam or sulphur dioxide. The International Sanitary Conference directs: "Immersion for twenty-four hours in one of the weak solutions—carbolic acid, two per cent, chloride of lime, one per cent." I saw the directions of the New York City Board of Health published in the *Times* this morning, and they call for the use of carbolic acid in five per cent solution, which is good. A circular which I saw a few days ago recommended the use of sulphate of zinc and chloride of sodium, which salts have been proven to be comparatively worthless as disinfectants, but the directions require the use of the solution boiling hot. It is

perhaps a good plan to give the people some salt, such as chloride of sodium or sulphate of zinc, to be put in the water in which articles to be disinfected are boiled. It might satisfy them better, and the boiling point would be somewhat higher from the adding of the salt. I was surprised that in the same circular sulphate of iron was recommended as a disinfectant for privy vaults and cesspools. It has been demonstrated that sulphate of iron has scarcely any disinfecting value; it is a good deodorant and a tolerably good antiseptic, but is unreliable as a disinfectant. An agent which is very valuable and very important, and which has not been mentioned in any of the circulars I have seen, is recently slacked lime. Experiments made in Germany with recently slacked lime show that it is a very potent disinfectant. The cholera spirillum and various other micro-organisms in the dejecta of patients are all destroyed by a freshly prepared milk of lime, and recently slacked lime thrown into urinary vaults or cesspools is one of the cheapest and best methods of disinfection. Chloride of lime was first brought into prominence by the experiments of the Committee on Disinfectants of the American Public Health Association, as one of the very best disinfectants. It is much cheaper than carbolic acid, and has other advantages. In hospitals, sulphate of iron, which I have been telling you has no value as a disinfectant, kept in a boiling hot solution in a reservoir of some kind, would be an excellent thing to disinfect bed-pans—the hot water would be the disinfectant and the iron would remove the odor.

“Articles of leather, such as trunks, boots, etc., should be either destroyed or washed several times with one of the weak solutions. Vomited matter and dejections of the sick should be mixed with one of the strong solutions in quantity equal to the material to be disinfected. Linen articles soiled with the dejections of the sick, if not immediately subjected to the steam, should be immersed in one of the strong solutions and left for four hours.”

The article which I shall next read was adopted unanimously by the Committee on Disinfectants and subsequently by the International Sanitary Conference.

“The disinfection of merchandise and of the mails is unnecessary. (Steam under pressure is the only reliable agent

for the disinfection of rags.)” By merchandise is meant ordinary merchandise in unopened packages, such as goods from wholesale merchants, etc. It does not mean the rags here spoken of, it does not mean damp hides in bad condition, it does not mean spoiled meats or vegetables undergoing putrefaction, but it means ordinary merchandise stored in the hold of a vessel. It is a great mistake to spend time in disinfecting things that do not need it and to neglect those things which do need it, and we should devote ourselves to the things which especially need disinfection.

Further directions are given about boiling water for drinking purposes, etc., and the conclusions further relate to quarantine in general and the precautions to be taken at the port of departure, during the voyage and, in the case of vessels from infected ports, upon arrival. I shall not enter upon the subject of quarantine, but before leaving the platform I wish to call your attention to the method which I think is the most satisfactory for collecting discharges from cholera patients and others for bacteriological examination and transportation from the bedside to the laboratory. What we want is some material from the intestine, or, if the patient is living, a little material from the vessel containing dejecta, being very careful, if sending it to a bacteriologist, that it has not been already disinfected—that is, that the material has not been placed in a vessel that has contained a disinfectant. I have offered to make these examinations at the Hoagland Laboratory, if there should be any call for them in the city of Brooklyn. I am one of those who believe that if a certain number of cases were landed from Quarantine here in Brooklyn or in New York, and scattered about in ten or a dozen different parts of the city, that with the facilities we have, and the knowledge we now have of prophylaxis by means of disinfection and isolation, the disease could be stopped even then. I believe it would not extend in these cities, because I have a good deal of confidence in our water supply. You all know that when the cholera prevailed in Naples as a very severe epidemic refugees went to Rome and fell sick and died. Rome is dirty enough, but she had a good water supply, and the disease did not spread, there being no cases except those of the refugees. We hear that refugees from Hamburg have been taken sick in

Berlin, but there is no local epidemic there so far, and I believe the Berlin people will be able to keep it away, and we can do the same thing.

THE HYGIENE OF CHOLERA.

By ALBERT L. GIHON, M.D., Medical Director U. S. N., ex-President American Public Health Association.

The occasion that brings us together just now is not actually the presence of an epidemic, but of its attendant cause, because all epidemics have a phobic *alter ego*, and we have now among us really not cholera but cholera-phobia ; it kills in an aggravated form, but in a mild form I do not know that it is altogether to be regretted. It is to be regretted that as it had to come, it did not come two or three months ago when Congress was in session, because then it is possible we would have had that legislation effected which, in the opinion of the members of the medical corps to which I belong, and of all the sanitarians that I know of, is the only possible effectual means of keeping diseases like this out of the country ; I mean the establishment of a national department or bureau of the public health. I recently learned from members of the Executive Committee of the International Conference of State Boards and Provincial Boards of Health, that it was the desire and intention of the State boards of health of this country and Canada and Mexico that there should be such a department of public health in the United States, which could unify them, co-operate with them, and in time of emergency like this could authorize them to do what ought to be done.

The mistake that health-men make everywhere is in tacitly acquiescing in the poor little sum doled out to them, and tacitly acquiescing in that the nation becomes imbued with the idea that that little is enough, and I believe health boards and health officers would do better by refusing to do anything unless they had the means they ought to have. A national board of health with \$5000 or \$10,000 or \$20,000 is no earthly good. It must have the power to use \$100,000 or \$200,000 if necessary. Now if we had a national department of the public health, foreign nations would know what to expect of us. They do not care what the several States are doing, they want to know what the United States is doing. And what is the United States doing? Absolutely nothing, except that

the President issues a proclamation, which is all he can do. And what are the provisions of the several States? As far as I know, there are but three equipped or tolerably well equipped quarantine stations in the United States. The first and best is that of the State of Louisiana, at New Orleans ; the second at Charleston, S. C., and the third your own in the harbor of New York. And what of that? If you read the papers thoroughly this morning you saw the preliminary report of this Executive Committee, and you know what their notion is of the thoroughness of the measures now in practice at the lower Quarantine. It is not for me to criticise them, but I beg you to read what is said in the papers, and draw your own inference. I may make one criticism. The first absolute necessity in dealing with cases like this is to take the well out of a ship as soon as possible, and not to shut them up and keep them there. Such a practice is indefensible, it is absurd, it is preposterous, whether it be five, ten, fifteen, or twenty days ; they should not be shut up on board ship a single day.

In this connection I may state my experience with cholera some years ago, when a yellow-fever ship came to the Navy Yard at Kittery. The health officers of Kittery quarantined her and kept the well on board. I persuaded the commander—I was a health officer (I lived in the Navy Yard)—and I guaranteed the safety of that community if they would let me do as I wanted. I took Seeley's Island, and put every man, well and sick, out of the ship on to the island. The captain said I would risk my professional reputation and my whole career in doing it ; but I begged these men that they would co-operate with me ; and they co-operated so thoroughly that one day when a bumboat man was found on board the ship, they brought him aft, and were told by the captain to disinfect him. They stripped him and went at him with hard brushes and took all the hide off, and after he was in that condition they threw him overboard and let him swim ashore. That shows how you can interest your patients and make them co-operate with you. I am perfectly well satisfied that if all the well persons were taken out of those ships now at Quarantine, it would be a very short time before they could go about their business. Dr. Jenkins does not do that now because he has not got the place to put them, and that is one of

the defects of the quarantine establishment here. There should be tents provided, and there ought to be vessels taken there and every person taken out of those ships at once.

If we cannot do that, what is it that we can do in the city? It is very simple; everybody says clean the city. Do you realize what cleaning the city is, what sanitary inspections are? I read in the paper the other day that four thousand tenement houses had been visited, and only one hundred had been found unclean. This was in New York. Can anybody believe that? Do you realize how long it takes to inspect one tenement house? I do not believe there is a man here who can inspect thoroughly one hundred tenement houses in a week. I said thoroughly; I do not mean simply to walk in and look around the rooms. To inspect a tenement house or a palace involves beginning at the attic, the opening of every door and window in that house, the taking down of every curtain, the looking under every bed, the turning over and moving of that bed, the opening of every closet and looking at things in the closet, the moving of every piece of furniture and going down and down into the cellar and looking at everything in that cellar. The man that can do that and give the necessary directions for the relief of what he finds there will find at the end of his week, after he has inspected his one hundred houses, at the end of forty weeks, after having gone through four thousand houses, he will find not the one hundred unclean ones, but one hundred clean ones, and there will be three thousand nine hundred unclean ones.

I had a little experience in the city of Brooklyn some years ago, when I was a resident here. I was asked to see a case of typhoid-fever in consultation. I entered the house, and found the parlor was one of those show parlors, shut up tight, the air of which was extremely heavy. I saw the patient—and it did not take me long to inspect the patient—but I asked to see the cellar. The lady of the house had never been in the cellar, and she considered it rather strange that I wanted to go there, but she finally showed me down. I found the place mouldy, and in the centre a water-closet for the servants in which the water did not run, and that had been there a long time, a nasty, pestilential mess, which was undoubtedly the cause of the typhoid-fever in that house. Do you know how

many things like that there are in the cellars of the houses of your patients? If you do not, you do not know the sanitary condition of those houses. I am living in a house in New York which has recently been inspected by the plumber and every basin and trap in the house renewed. Every trap in that house was out of order, being plugged up with sponge and small pieces of rag and burned matches. The very day after the new traps were put in I happened to go into the water-closet, and I found floating in the basin a lot of burned matches and a piece of sponge as big as my hand. These people were not Italians or Poles, but were cultured people. I commented on it, and the lady said she thought it must have been done by an old lady in the house. On the very next day I happened to go in the closet; there was no light in it, and I found the gas had been allowed to escape by some careless person, when a certain physician, a friend of mine, who was then in the house, came running with a match. He lit the gas and threw the match in the basin. It was not the old lady who was guilty of throwing matches in the water-closet.

Now, if houses are foul, what do you think of ships? You probably never have seen a Russian Jew when he starts for this country. He is a man who probably has never washed in his life; he is a man who certainly has worn the rags upon him as many years as these rags would hold together. You put that man in a crowded steerage, he becomes seasick (this same thing applies to the women), he vomits, his dejecta are thrown out in that bunk, it becomes saturated with seasickness, and then he becomes choleraic. Will you tell me what amount of cleansing will get that ship in condition again for a long time, except all such men are taken out and then she is thoroughly washed and cleaned? All these ships are damp ships. We are told that water is the very means of communicating cholera. We know in the navy that water has had a great deal to do with the spread of tubercles. It used to be the disease that prevailed in our service, and the medical officers of the navy for thirty years were fighting wet decks; and the last few years there has been no such thing as wet decks on board ship. If the atmosphere can support and transmit this aqueous vapor, and with it the tubercle germ, is it not

possible that the same atmosphere can transmit that aqueous vapor, and with it the cholera germ? I do not know whether Dr. Sternberg will agree with me in that; certainly I think if that aqueous vapor gets into the mouth in any way it will be carried down to the stomach. Imperfect sanitation is worse than no sanitation. Fumigation is as unfortunate a word as quarantine. I abominate the word quarantine, because it carries with it the idea of forty days' detention, and that I do not approve of; it would be better to call it sanitary non-intercourse. Fumigation is worse than quarantine, because if you fumigate you burn something, and you think you are perfectly safe. A friend told me he was in a house during a fumigation, and as he did not feel inclined to move, he stayed there and sat in the room and read a paper during all the time of the fumigation. There is a report in the papers of a ship which was fumigated, and after it was all over they found an old hen still sitting on her nest; and still another case where a cat was discovered, having gone through the fumigation without being disturbed. Now processes of that sort are worse than none at all, in that they give a feeling of protection when it does not exist.

Unfortunately commerce is the enemy of sanitation. Commerce opposes everything that sanitary officers and health officers try to do, and I am delighted when commerce is made to bow. I would carry out the President's proclamation to the very letter, even if it obstructed immigration.

Mr. President, I know I have not said anything you did not already know. Pardon me, therefore, if I now make a little practical suggestion, and in order to make this suggestion I was persuaded to intrude myself upon you. The first suggestion I would make would be that the Medical Society of the County of Kings print a circular on a single sheet of paper in as concise words as possible, to be printed not only in English, but in German, Italian, Russian, and Hebrew, and have that circular posted up by the authorities or the health officers in every tenement house and every other house, and send and distribute and put them in every establishment in this city, informing the people how to examine a house, how to inspect it, how to open their cellars, and to whitewash their cellars—what to do and how to do it. The second suggestion I would

make, which is the most important, is that every medical man in the city of Brooklyn, and I would not ask to see their diplomas, and if a stray irregular should creep in, even though it would be ethical treason, I would not except him—I would make every medical man in this city a sanitary inspector under direction of the Health Commissioner, give him his block or two, authorize him to go into these houses—rich men's houses as well as poor men's houses—and go from the attic to the cellar and see if they have done that which the circular has told them to do. I think that would be fulfilling the highest duty of the medical profession. Then you would give your health officer a hundred arms, and he would not be limited to the very small force which he has and with which he does so much. Further, I would have every police officer compelled, while on his patrol, to examine the outdoor condition of things—the gutters, the corner grocery stores, looking down into their cellars to see that there be no decaying vegetables. If you do that, I think that in one week you can put this city in a thoroughly sanitary condition, and you can defy the cholera and control the disease that has a germ so delicate that you can hardly help killing it.

PRACTICAL SANITATION *V.S.* DETENTION.

By A. N. BELL, M.D., Editor of *SANITARIAN*.

It is difficult for me to say anything except to emphasize what has been said by others ; but I venture to assert that the present interference on the advent of cholera without a national board of health, is no exception whatever to a national government without a board of health always doing harm and obstructing the health service. I look upon the action thus far as having that effect. I have entertained these opinions a long time, and may, I hope, be excused for the emphasis with which I state them, that commerce has always been at conflict with our health administration, with the exception of a few years when we had a government board of health, and it then did something to protect us. National interference, or State interference, or municipal interference, without an organized board of health is ineffectual, aggravates and alarms public sentiment, creates undue excitement, even as the Government interference has here done now. The Presi-

dent's proclamation has done more harm than any act I know of since we heard that cholera had come to the port of New York. And it ought to alarm them ; it is horrible to shut up in a ship for twenty days, or even one day, such immigrants as Dr. Gihon has so well described. The whole spirit of the proclamation means that a ship comes here with one thousand people on board, and there may be one, or a dozen, or a hundred cases of cholera, and they are going to be kept there until they die—why, the very thought of the thing seems like going back to what we read of in the Middle Ages—that we are afraid to take hold of them and cure them. Our business is to take every well person out and protect his life, take the sick out and properly care for them, and disinfect the ship as soon as possible and give her to her owners. That is practical sanitation as opposed to the preposterous system of detention. I did hope and think we had gotten over the detention system in the State of New York. But this is not our practice.

Some of you here who are most acquainted with me know that I have for many years advocated practical sanitation, as practised at New York quarantine, instead of this murderous detention system that has been foisted upon us. If a case should possibly come to Brooklyn, it would probably not come by way of the New York Quarantine. The committee of observers may rate it third or fourth, but one single act of our present Health Officer at Quarantine, his system of disinfecting ships by steam, places it above Charleston or New Orleans, and I know something about both of those places. It is true that the disinfecting system here has not been completed, and the work is not as well done as it should be, for the reason that the appropriation was scant, and because the commissioners undertook to do about \$40,000 worth of work with less than half that amount of money. The steam plant is imperfectly finished in many respects, and it is awkwardly arranged. Nevertheless, compare the condition, if you please, with what we had here five years ago. Some of you perhaps know what it was then. In looking upon the present condition, I would say it is incomparably safer than it was in 1887. The emergency was greater at that time, and we are a hundredfold better prepared to meet it now. I am very sure

that every one present of the physicians of Brooklyn is ready to take such suggestions as have been made here to-night, and that if a case of cholera comes here, it will be closely watched, and not a case will be allowed to escape.

With all respect to my friend, Dr. Gihon, I would say that many of the members of this society would not make good inspectors, and I have much more confidence in the trained inspectors at the Health Officer's command, and if he has not enough of them it is the duty of the city to give him more, and he should get the best of the Kings County Society; he should get as many physicians as possible, and have them trained and made competent, and then they will be able to see things under the bed and behind the curtains, and their inspection will be a thorough one.

PERSONAL EXPERIENCES WITH CHOLERA IN CHINA AND JAPAN.

By E. S. BOGART, M.D., Medical Director, U. S. N.

I thought perhaps a brief account of the circumstances of an outbreak of cholera which occurred on board the United States ship *Monongahela* in the summer of 1878, which was quickly brought under control, might be of some interest. She was lying in the port of Shanghai with some two hundred and eighty men on board in August, 1878. There was cholera on the coast in various places, although it was not known that there was cholera in Shanghai, no case having occurred among either the European or American residents, but there was a strong suspicion that there was cholera among the native Chinese. The ordinary measures for guarding against infection were observed, but at the end of August a case occurred late in the day which was recognized as cholera. The next morning another one, which promptly passed through the stages and died in the course of six hours. The ship was disabled from her engines and boilers being under repairs, but the commanding officer was advised to take the ship to sea under sail. We got under way at two hours' notice and sent the corpse of my second patient ashore. The ordinary measures of disinfection were carried out, carbolic acid was thoroughly used, and no further cases occurred. Some of my patients got well and some of them died in about the usual proportion, but no cases appeared after leaving port. The removal from the in-

fectected locality with the men on board was effected, and the ordinary measures of disinfection sufficed. The infection came on board, notwithstanding all our precaution, by means of some Chinese boys, I think, who were sent into the boilers for the purpose of scaling them, and were not allowed to go in any part of the ship except immediately into the boiler and immediately out of it.

My second observation is perhaps more instructive, and occurred in Japan in 1885, when the French fleet came in from Southern China in August after the close of the Franco-Chinese War. They had some cases of cholera, and had lost their rear admiral. They claimed the fleet to be healthy. Not long after their arrival some cases of cholera occurred among the washmen who lived together on the shore and did the laundry work for the ships, and among the workmen employed in the dry-dock occupied by the ship, and the disease raged with great violence. On the part of the United States fleet strict quarantine was made against the shore, and every possible precaution was taken to avoid infection, with one exception. The *Ossipee* at the end of August, when she was about to sail, took on board some grapes, and with these grapes appeared to come the infection. I think within thirty-six hours after she left port the cholera suddenly broke out when she was in the inland sea and she was taken to a quarantine station at Kode, where the men were landed in three parties—the sick, the suspects, and the well. All the clothing, bedding, and personal effects were subjected to dry heat, but the ship was steamed by her own boilers by breaking joints in the steam-heating pipes of the different apartments and allowing the steam to escape. The men went back on board ship and she continued her course during that and the following year when cholera was rife in all the ports of Japan. In both of these instances the disease was very promptly checked, and we had no more of it.

PRACTICAL SUGGESTIONS IN THE MANAGEMENT OF CHOLERA.

By CHARLES U. GAVATT, M.D., Surgeon U. S. N.

I wish to thank you, Mr. President, and members of the society, for the courtesy by which I am allowed to attend and take part in the discussion of a subject so important as this. It is one which is engaging the interest and attention of the

entire world, and as it affects you gentlemen of the city of Brooklyn, so it affects us at the Naval Hospital and the Navy Yard. Our interests in this matter are common; and, as I understand it, the purport and purpose of your meeting this evening is a comparison of views so as to formulate some definite plan of action by which your city and surroundings may be put into the highest possible state of protection. I will, with your permission, offer such suggestions as a limited experience with cholera may prompt. My belief is that even should the cholera pass the barriers so zealously guarded by the Health Officer of the Port of New York, or should it slip by Hell Gate or creep in along our almost unprotected and vast Canadian border, in view of the lateness of the season, I do not believe it would prove to be of a very virulent type, or perhaps be very widespread before being effectually checked by cold. This consideration should not lead to any relaxation of watchfulness or precaution on our part, for the history of cholera shows that where it has gained access into a country, in this country and in others, in the closing months of the year, and become dormant during the winter, it has invariably sprung into activity during the warm weather of the following summer and gone on with its ravages. Therefore, simply because it may prove itself harmless this winter is no cause why we should relax a precaution that is to keep out a danger that menaces the city and the country. Thousands of valuable lives may pay the penalty for any want of attention now. Your Health Officer alluded to the panic that has already taken the city of Brooklyn and one that always appears upon the approach of cholera. My impression is that one of the very first and most important things to be accomplished is to allay this very panic. This can best be done by the medical profession instructing and acquainting the people generally with the true nature of the disease, its mode of propagation and dissemination. Let them understand that the atmosphere is not permeated by germs that endanger their health, but that in the vast majority of cases the air may be thrown out of consideration almost entirely. The source of danger is food and water that have been contaminated by the careless attention or perhaps no attention at all to the gastric and alvine discharges of the sick, or to the careless handling of the bedding and linen that have been soiled by them. Let the

people know that it is non-contagious, that attendance upon a case of cholera with strict attention to cleanliness, which by the way, if ever it came close to godliness, is in connection with this plague, is no more dangerous than a case of typhoid fever. Let the people understand these things, and when your authorities demand the destruction of property or demand their co-operation, instead of attempting, as they so often do, to oppose these authorities, you will find that they will assist them cheerfully, and the popular panic being allayed, one of the very first steps to successfully combating the disease has been gained.

The division of a city into sanitary districts is, to my mind, one of the most important. Your Health Officer has told us he now has five sanitary districts, with, I think, sixteen assistants. With a population of nearly a million, I think that this is not sufficient. The area under the control of each sanitary inspector should not be so great that he could not be thoroughly familiar with every nook, corner, and cranny of his district, and that he may go over it at least once in two or three days. This inspector should be under the control of the Commissioner of Health, and every doubtful case occurring in that district should be reported to the Commissioner, and if he is satisfied that it is cholera, or if he is in doubt, that case ought to be, if possible, promptly removed to a hospital prepared for the purpose. I very much question the wisdom of having cholera scattered through your city in the various hospitals. I know not what the hospital accommodations of your city may be, but there should be, for diseases like this, one place where the infected patients could be carried and kept there in strict surveillance and quarantine. This brings me to the next point which I wish to make, namely, the establishment of an ample and efficient ambulance corps. It will not do to have the sanitary officers at one end of this large city have to wait until an ambulance can be sent from the other end. There should be several ambulance stations, with a sufficient number of ambulances, which should be under the control of each of your sanitary inspectors. Where it is impossible to move a patient to the nearest hospital, the bedding, clothing, and linen that may be soiled by that patient should be removed and taken to a disinfecting apparatus, which should be in connection with this hospital. It is not necessary to

destroy every article of clothing, notwithstanding the suggestion made by the last speaker that every article should be destroyed. It means loss that is unnecessary, and as Colonel Sternberg has so clearly shown that the spirillum of cholera is easily destroyed, the normal death point being 125.6° F., there can be no necessity for destroying bed clothing and other articles of very great value to the people, but there should be a certain depot for this purpose at which they should be disinfected by live steam. There are many contrivances very admirable for the purpose, particularly one recommended by Gibier. In every case of disease all discharges and soiled linen should be immediately put in a vessel prepared for the purpose, containing a certain amount of the disinfecting fluid. The disposal of the dead is another practical question, and you have a crematory in Brooklyn which is by all odds the best one. If that is not used, each body should be well wrapped in sheets wet with bichloride, $\frac{1}{500}$, or carbolic acid of sufficient strength, before removing.

THE CHOLERA ABROAD.

By T. P. CORBALLY, A.M., M.D.

CHOLERA has now assumed very formidable, even alarming proportions, in Europe. The foci of the disease are Russia, Persia, and Eastern Asia.

From Central and Western Europe it has extended to the port of New York. And so long as we continue to receive emigrants from Russia and her infected byways, we may be assured that the danger for us will continue. We here give an excerpt of the epidemic as detailed in foreign medical and sanitary journals of recent date.*

It has been determined, from official records, that the number of deaths from cholera in all parts of Russia, up to the 20th of July, O. S., was about 25,000. The *Sanit. Dieło* gives the details for many of the important cities of Russia and its colonies. The districts that suffered most were the Caucasus, in which there were nearly eight thousand deaths, and the prov-

* SANITARNOE DIELO, *Organe Obchestvenoi i Chastnoi Gigieni*. Izdatele d—re. Med. B. G. Pozene, Redaktore, d—re, Med. A. D. Marsikani, July 19th and August 1st, O. S., 1892, and *Le Progrès Médical*, August 20th and 27th, 1892.

ince of Astrakhan, with about forty-five hundred. Details from other provinces show that the epidemic was more or less severe throughout the country.

Le Progrès Médical states that on August 15th there were only 28 cases in Nijni-Novgorod and 12 deaths. The hospitals were gradually emptied and the tents discontinued.

At Bodorodsk, in the province of Moscow, the meeting of the city authorities was most tumultuous. The presiding officer, having proposed the establishment of an ambulance, his voice was drowned with cries of "*No! No! We do not want any! There is no cholera here!*" When order was restored the official tried to reason with the meeting, but the disturbance became more violent, and the meeting adjourned without transacting any business.

At Starobotsk, province of Kharkov, the populace, excited by rumors similar to those current at Astrakhan and Saratov, destroyed the municipal ambulance intended for cholera patients. The inhabitants of the village of Golodalew, province of Kharkov, attacked the doctors who were engaged in disinfecting the places which had been occupied by cholera patients. The government sent soldiers to the place and restored order, and those engaged in the riots were arrested.

The Russian Government has granted a pension to the widow and the children of the late Dr. Moltchanof, who was brutally murdered during the cholera riot at Kwalynsk.

The doctor was about to leave the place in order to settle in St. Petersburg, when he was charged with the organization and the direction of a barrack for cholera patients.

When the trouble first broke out, against the advice of his friends, who entreated him to leave the place, Moltchanof decided to remain, because he thought it was his duty. On June 30th, O. S., he was at his post when the first body of rioters arrived. All demanded his death in violent terms, calling him "*Doctor Cholera,*" and accused him of having a written engagement, for a sum of money, to poison the water of the town. The doctor escaped on horseback and saved himself with difficulty. Secreted in the house of a friend, he was betrayed by the servants. The mob surrounded the house and threatened to burn it. To save his host from damage, Moltchanof gave himself up to the rioters. Three priests who interfered in his behalf were terribly injured by the

crowd, who at the same time began to inflict protracted torture on the helpless doctor. They tossed him into the air and let him fall violently on the pavement. They put him on a rail and broke his skull with kicks. The women finished his sufferings with stones and hammers. When dead they mutilated his body in a horrible manner, and left some of their number on guard to prevent his friends from removing the mangled body, which was now disfigured beyond recognition. The authors of this outrage were pursued and 200 of them arrested and given over to the military authorities for punishment.

Official reports from Astrabad confirm the news of the attack on the shops of the Russians.

Three Russian gun-boats had arrived at Astrabad, and the infantry and cavalry sent to protect the Russian residents had landed.

No quarantine will be enforced in Spain against persons entering from France, in consequence of the decline of cholera in that country ; but strict measures will be enforced against all coming from Russia. A report was circulated that the sanitary measures adopted would prevent the return of persons travelling in France ; but the Minister of Foreign Affairs has formally contradicted it in a dispatch to the consul at Bayonne.

Austria-Hungary.—It is reported from Leopold that the authorities on the frontier have forbidden the passage of 2000 pilgrims going from Russia to Klavarya in Galicia. Some of the pilgrims tried to take the route to Prussia, but they were arrested by the police at Szczakova. From reports received from different districts of Poland, the sanitary condition is excellent.

Switzerland.—The Federal Council has decided to postpone the enforcement of sanitary measures against cholera for the present. Only one suspected case had been reported up to August 20th, but it was not Asiatic cholera.

Denmark.—The Minister of Justice has decided that all persons coming from Russian ports on the Baltic and the Gulf of Finland will be subject to quarantine.

Germany.—A permanent sanitary commission, intended to prevent the spread of cholera, has been formed at Spandau and at Charlottenbourg.

Persia.—The Shah of Persia, who had decided to go immediately to Teheran, where there were 60 deaths from cholera, has been advised to remain at Mount Elbrouz, twenty miles from the city. The deaths from cholera are increasing at an alarming rate. The authorities furnish no statistics, but 300 was the probable number of deaths on August 14th, while it was no more than 60 on preceding days. The American Board of Foreign Missions have a hospital which is now rendering good service, but their funds are insufficient. The railroads and tramways have stopped running, and the shops are closed. The epidemic rages fearfully in Tabriz, where hundreds of deaths occur daily.

On August 27th *Le Progrès Médical* reports: "News from the south of Russia continues favorable." Many of the journals criticise the haste shown by the authorities in discontinuing the barracks and lazarettoes as soon as any amelioration is shown in the sanitary condition. The people of Bakou are rapidly returning to their homes.

According to news from the Caucasus, the cholera is rapidly decreasing. During the last few days there were only 5 deaths a day at Batoum. The epidemic is also decreasing at Astrakhan; but the disease is raging with fearful intensity in Afghan Turkestan and in Persia.

The municipal authorities of St. Petersburg have increased the number of physicians and nurses in the hospitals, and have borrowed wagons for the transportation of the sick from the Society of the Red Cross and from the military authorities. They have also engaged 100 sisters of charity to nurse the sick. The municipal authorities are establishing restaurants, free, or at very low prices, for the poor, and ambulances are ordered for the districts in which there are no hospitals.

The Minister of War has decided that the reserves will not be called out this autumn in consequence of the epidemic.

Very favorable reports of the sanitary condition are coming from Moscow, Nijni-Novgorod, Astrakhan, and Bakou. There are not in these places at the time of this report more than 15 or 20 cases a day, and the death-rate is very small.

At Nijni-Novgorod the Governor has lessened the period of observation to which travellers going to the fair by rail or by the Volga, were subjected. At Nijni they have closed the

floating lazaretto established on the Volga near the city, and the attendance in the hospitals has nearly ceased.

In St. Petersburg there were 70 new cases on August 16th, 5 of which were cured and 5 died. On the 17th, 60 cases were attacked; 22 died and 19 were cured. The 18th and 19th there were 92 cases and 13 deaths; the 20th and 21st, 87 cases, 32 died and 53 recovered; on the 22d and 23d there were 95 cases and 35 deaths.

In the Department of Toula, up to the 14th, 38 cases were recorded and 11 deaths.

In the district of Lublin, in Poland, the official reports to the 19th of August give 34 cases and 13 deaths.

In Persia.—The epidemic started from Herat and advanced first to Meehed, a large city frequented by pilgrims, who go there every year from all the provinces of Persia to visit the tomb of the iman Reza. The plague thence extended along the route leading to Teheran, and reached the cities Nicapour and Sebvezar. The city of Chahraud has not yet been visited. By way of the northwest, cholera has appeared in the cities Koutchan and Boudjnourd, then in several small Russian military posts, and in the city of Askhabad, which lies to the north of the frontier of Khorassan, and, finally, at a bound, it attacked the eastern shores of the Caspian at Ouzoun-Ada, the starting-point of the trans-Caspian Railroad, and almost at the same time it ravaged Bakou, situated on the opposite shore of the Caspian. Then Tiflis and Astrakhan have been visited by the epidemic.

The daily telegraphic reports in the newspapers from Hamburg render it unnecessary to extend our summary with regard to the epidemic there.

September 16, 1892.

MILITARY HYGIENE IN FRANCE.—*Le Progrès Médicale* reports that, to give the members of the medical corps opportunity to acquire such knowledge of hygiene as they cannot obtain in the regiments and in the movements of large bodies of troops, the Minister of War has ordered that a period of five days every year shall be devoted to instruction in hygiene, at a time and place to be designated by the general commanding the corps d'armée. The exercises to be held at Paris for

the second, third, and fifth corps ; at the camp at Chalons for the first, sixth, and seventh corps ; at Rennes for the fourth and tenth corps ; at Lyons, avoiding the time for the alpine manœuvres, for the eighth, thirteenth, fourteenth, and fifteenth corps ; and at Bordeaux for the ninth, eleventh, and eighteenth corps.

The plan of instruction will embrace conferences and active manœuvres. The latter will be commanded by a general officer, and will consist of exercises appropriate for the army on the march, the organization and installation of all measures necessary for the arrangement of ambulances and the management of an improved sanitary train. The army corps in garrison will furnish the troops necessary to represent a battle in which a division is engaged with its proper service.

All the groups will be represented, and an exact estimate of the probable duration of the action in real warfare must be taken into account.

All the officers of the sanitary service will be called upon to take part in these exercises at least once in five years. The pharmacists and the chaplains of the different sanitary divisions whose duties, in time of war, do not require a special preparation, will not participate in the exercises.

The infirmarians in reserve and the drivers of the ambulances will be required, in each army corps of the division, to attend and complete the sanitary arrangements, so that they will be trained to act in concert.

The officers, who are not mounted in time of peace, and who should be in a campaign, will receive a horse saddled and caparisoned.

The surgeons and the directors of the sanitary service among the reserves and army stationed in particular districts will be notified of the time and place of the exercises at which they may assist, but without the right to any allowance. A surgeon of the active division will be appointed to direct them. Their presence will be mentioned on the special reports, and mention will be made of any special quality of which they may be the object.

It is announced from Toulouse that the exercises, of which that city will be the centre, will take place early in July, and will be held within a radius of thirty kilometres. T. P. C.

THE RELATIONSHIP OF DISEASES OF THE LOWER ANIMALS TO MAN.*

By JAMES LAW, F.R.C.V.S., Professor of Veterinary Medicine, Cornell University, Ithaca, N. Y.

A SENSE of the dangers attendant on the use of animal food appears to have been almost as old as history. The law of Moses distinguishes between the clean and the unclean, the beasts that may be eaten and those that may not. The prohibited animals are, in the main, the purely carnivorous and omnivorous—those that are especially liable to contract contagious and parasitic diseases from the flesh of their victims. In drawing a safe limit, the edible mammals were practically restricted to the ruminants, which are *par excellence* herbivorous. According to this law, however, even the *clean* animals were forbidden, if they died of disease, of strangulation, or with the blood in the carcass. Similarly, among many primitive peoples a dead body is tabooed, and in ancient Greece the priests of Zeus were polluted by touching uncooked meat.

The great sanitary importance of the Mosaic laws for a pastoral people pitching their tents on the open, grassy plains, and living, in a sense, in common with their vast flocks and herds, is manifest without argument. The parasites and contagia that they mutually harbor increase and dominate in exact ratio with the close aggregation of their hosts—human and brute—and the facility of their transmission from one to another. The prohibition falls first on those flesh-feeders that are the most likely to reciprocate with man in the maintenance of parasites and infections. Then it denounces the sick as especially dangerous, and, finally, that which dies full of blood and is correspondingly liable to early putrefaction. The prohibition of blood was probably ritualistic rather than sanitary in its object, yet we need not ignore the experiments of Signol, who showed that the portal blood of a suffocated horse contained a poison that could be conveyed from horse to horse with fatal results through several successive generations.

* Address before the Alumni of the University of Buffalo.

The simple avoidance of the dead body and of uncooked meat in the case of many early peoples, though showing a similar precautionary tendency, is far less effective than the prohibitions of the Jewish code. We can still observe the good fruits of the latter in the comparative immunity of the Israelite from such diseases as trichinosis, the pork tapeworm, and tuberculosis.

These examples of tribal hygienic laws, however well-suited to an age in which the knowledge of disease and its causation was but as a glimmering spark, are sadly antiquated and ineffective in the strong electric glare of the nineteenth century; yet even now our hygiene of meats, as applied to our stockyards and markets, is far behind that which the Jews have practised for over three thousand years.

The Jewish system is a crude measure, feeling, as it were, in the dark for protection from an imminent danger, and was perhaps as perfect as could be understood by a people with the grade of knowledge possessed by the Jews; but it is capable of making no real discrimination between the dangerous and the harmless—whole genera of wholesome animals are prohibited to avoid the danger of a few of each genus conveying deadly poisons; and the wholesome flesh of the imperfect or injured animal is condemned equally with that which is the subject of a fatal infection. Moreover, some of the most deadly diseases (like anthrax), affecting the blood and spleen only, may still pass as wholesome, because no solid tissue of the body has been observed to be diseased.

With our modern knowledge of the life-history of parasites and of the microbes of disease this crude and unintelligent selection and rejection must give place to a true scientific scrutiny; and every available resort, microscopic and otherwise, must be brought into requisition to protect the public from the truly dangerous animal foods.

To illustrate the field that must be covered I shall name a few of the diseases of our meat-producing animals that are communicable to man, and I cannot begin the list better than with

TUBERCULOSIS.—From this terrible scourge the sheep is almost exempt, while cattle, goats, pigs, rabbits, and chickens are extraordinarily susceptible. Among many wild animals

also, the proclivity is strong, and thus at every hand man is liable to meet the redoubtable bacillus. The dangers of the disease are the greater that in many cases occurring in man and beast it assumes a chronic course, and its victims manifest a fair measure of health, so that their unsuspecting owners apprehend nothing and see no need of disposing of them, and of thus cutting short their career of plague-diffusion. The vitality of the tubercle-bacillus is also very great, so that it survives alike the lapse of time, the wetting, drying, freezing, and thawing of changing seasons, and even the curing of the meat and the heat of ordinary cooking. Toussaint and others have again and again infected animals with meat that was believed to have been sufficiently cooked for safety. The dried-up expectoration is easily diffused with deadly effect on the air, to be inhaled by man and beast; and though for man perhaps the most common vehicle is the handkerchief, and for the beast the feeding or drinking trough, yet the dust of our streets and stockyards, of our dwellings, stables, passenger and stock cars is a prolific channel of infection.

Milk is another common medium of infection, and, since the time of Gerlach, has been often used successfully to produce tuberculosis in previously healthy animals. Nor is the local disease in the udder essential to its conveyance through the milk. The tuberculous cow, with a still apparently healthy udder, frequently yields milk which, inoculated in other animals, produces tuberculosis. Irrespective of the escape of the microbe with the milk, however, it is a thousand to one that the tuberculous cow in licking her udder should leave upon it more or less of her infecting expectoration, to be dropped into the milk-pail as dust at the next milking. A frequent mode of propagation among pigs must not be overlooked. About abattoirs it is a common practice to feed to pigs the uncooked offal of the slaughtered animals. As in certain districts a considerable proportion of the cattle are tuberculous, this amounts to a systematic infection of the hogs. A few years ago, at a large public institution, where one half the herd of cattle proved to be tuberculous, and where the pigs were fed on the offal of these cattle killed for beef, I found that the swine were, as a rule, similarly affected. I am informed that it is no uncommon thing here in New

York for a cow, run down by tuberculosis, to be butchered in some out-of-the-way place, cut up into mince-meat, and put on the market as sausage.

Then, again, the danger of contamination through offal and expectoration, though great for pigs, is even greater for chickens, which secure admission to every yard, and eat indiscriminately any organic refuse they can find—notably thick expectoration. Then, too, the course of tuberculosis is far more virulent in the chicken than in our larger mammals, and the product is proportionately infective to other animals. Is it wonderful that in the State of New York for a period of eight years ending 1888, every eighth death was from tuberculosis? We need not ignore or undervalue the accessory and predisposing causes of this dread disease. Many persons have undoubtedly a great power of resistance to tuberculosis, and the great majority escape death by this all but ubiquitous germ; yet the facts remain that none contracts the affection in the absence of the bacillus; practically no efficient measures are taken to restrict its prevalence, and 12 per cent of our human mortality is caused by its ravages. Now, one word as to the diagnosis of tuberculosis in animals. Speak of consumption, and the average hearer conjures up a vision of extreme emaciation, a frequent, racking cough, profuse expectoration, with solid particles floating in a purulent medium, a heavy and somewhat offensive breath, inappetence, sunken eyes, and general wretchedness. In cattle, however, the majority of cases show no such symptoms, at least for a length of time—often for years—after the onset of the disease. The symptoms will vary extremely, and prove in the main absolutely unlike in different cases, according to the organ attacked. I cannot take time here to enumerate the symptoms of the different forms, so I shall content myself with naming the organs most frequently attacked, to the exclusion of the lungs:

1. The bowels and mesenteric or sub-lumbar glands.
2. The throat and pharyngeal lymphatic glands.
3. The liver, spleen, pancreas, or kidney.
4. The generative organs (ovary, womb, testicle).
5. The subcutaneous and intermuscular lymphatic glands.
6. The cancellated tissue of the bones.
7. The skin.

As the involvement of each of these may assume all grades of severity, it must be evident that great skill is required to diagnosticate many a chronic or subacute case of tuberculosis in the animal. In many occult cases, indeed, diagnosis is practically impossible by ordinary tests, and in the case of dairy herds in particular the reaction with tuberculin may be invoked to attest whether the milk supply is wholesome or otherwise. Inoculations may further be resorted to in doubtful cases. These tests, however, together with the post-mortem examination in the abattoir, with the occasional resort to staining and microscopy, can only be conducted by the educated man.

To properly restrict such a disease as this, and to prevent its propagation to the human family from the brute, a professional supervision of dairy herds is demanded; also, of stockyards, but above all of slaughter-houses, and to make this last effectual every town should have its *one* municipal abattoir, where alone animals may be killed and where every animal killed must be inspected. Meat that has not been inspected by the authorities should be debarred from the market.

ANTHRAX.—To turn to another animal contagion—*anthrax* may be selected. Though most deadly to both man and beast, this, when once started, is not propagated indefinitely in a locality. Its germ—the bacillus anthracis—is one of the largest of the pathogenic microbes, and was the first to be identified as a cause of disease. The disease is rarely propagated except by contagion from diseased animals—either directly, or through the medium of flesh, blood, morbid discharges, hair, wool, hides, bones, litter, knives, or other solid bodies that have been stained with the diseased products. Its perennial home is in certain dense, wet, or septic soils, in which its spores are preserved indefinitely, and which prove deadly to flocks or herds placed upon them. In open, well-aired soils it is soon rendered harmless. In man it is largely the disease of herdsmen, cattle-dealers, butchers, tanners, hair-workers, felters, and wool-sorters, and, exceptionally, through the contaminated flesh, milk, or cheese of consumers. Though this wholesale poisoning of men is exceptional, yet on infected soils it sometimes reaches a high figure. In 1770

15,000 people died in six weeks in St. Domingo from eating anthrax flesh, and in the frequent anthrax years on the steppes of Russia a large percentage of the human population often perish in a single year. Besides this, the virus is carried and inoculated by mosquitoes and other blood-sucking insects, and thus man is usually attacked on the face, hands, and arms—the parts which are habitually bare. The dangers to man are, therefore, coextensive with the prevalence of anthrax in animals. Anthrax may, however, appear as a general fever, with no local external lesion, or it may become localized in tongue, throat, bowels, skin, muscles, lungs, or elsewhere, and according to its seat will be its symptoms and morbid changes. At the autopsy the engorged spleen may indicate disease, but it requires professional skill to say whether that engorgement is due to the bacillus anthracis, the shorter bacillus of blackquarter, a bacillus of septicemia, or the plasmodium of Texas fever. From Texas fever, however, man is exempt, and he can eat the flesh of its victims without thereby sealing his fate.

BLACKQUARTER, or bloody murrain of cattle and sheep, has been alleged to be uncommunicable to man, as anthrax has been said to respect swine, but there is a sufficient number of instances to the contrary to show that the immunity is by no means invariable.

DIPHTHERIA.—It may be a revelation to some that that dread of our nurseries—diphtheria—is also a disease of the lower animals, and that, among other parts, it attacks the udder and milk-ducts of cows, and thus through the medium of the milk it can find an easy entrance to the throats of children. Whether, therefore, in the dairy cow or in the slaughtered ox, the educated eye should be ready to detect and remove the animal charged with such a terrible infection.

GLANDERS is usually supposed to be confined to the horse and man, and in both alike it is rightly considered one of the most painful, loathsome, and fatal diseases. It can be successfully inoculated not only in man and the horse, but also in the sheep, the goat, the pig, the rabbit, the dog, and the cat. The meat-inspector must, therefore, be acquainted with the affection as it occurs in each of these genera, and as it attacks the different regions of the body; for glanders may

attack almost any portion of the system, to the exclusion, at first, of its common seats, the nose and skin. In this disease, too, as in tuberculosis, the germ (*bacillus mallei*) elaborates specific chemical poisons (ptomaines and toxines) which, when inoculated in the suspected animals, go far toward determining the presence or absence of the disease, by producing or failing to produce a febrile reaction in the subject. Again, as in tuberculosis, the germ of glanders can be cultivated on a large number of organic substances, as bread, potatoes, peptonized gelatin, etc., outside of the animal body, and hence its tolerance in any locality is a source of constant danger, and, in the present state of knowledge, nothing less than criminal.

CANINE MADNESS.—As we erroneously attach the idea of glanders among domestic animals to the horse only, so we connect the idea of rabies (hydrophobia of man) with the dog. Not man alone, however, but all domestic animals contract this disease when inoculated with the mad dog's tooth, and in all alike the carcass becomes infectious. I must add that the disease does not always present itself in the violent or delirious form, but that in a certain number the apathetic or paralytic symptoms predominate from the first, and in the absence of an intelligent inspection the meat of such an animal may be thrown upon the market and may fatally infect those that partake of it. That this disease can be prevented by inoculation with the toxines has been shown by the admirable work of Pasteur; yet the enthusiastic application of his method to the as yet sound animal is not without its drawbacks and dangers, unless the animal so inoculated is carefully secluded from others for a length of time. It is a notorious fact that where such inoculations have been most extensively adopted rabies has been unusually prevalent in animals, a circumstance that calls for intelligent supervision of our meat-products in this direction.

TETANUS, or LOCKJAW, is nearly related to rabies. Its germ (*bacillus tetani*) is conveyed from infected soil to man or beast, and from animal to animal indefinitely. Like rabies, it makes its localization in the great nerve-centres, as the general racking muscular spasms bear all too frequent evidence. Like rabies, too, it attacks all warm-blooded animals, and thus man may suffer by infection from any creature so dis-

eased, or from contaminated dwellings, instruments, or soil. While it is true that this malady can be cured by the blood-serum of an animal that has survived an attack, and while it is further true that the system may be fortified against it by inoculation with the ptomaines and toxines produced during the disease, such truths can never justify the lack of such skilful professional inspection of our meats and meat-producing animals as shall protect the community from an affection at once so agonizing and so redoubtable.

MILK-SICKNESS.—In a number of localities that have fallen behind in the race of agricultural improvement there lingers a disease, indigenous to the soil, communicable to all mammals and affecting the nervous centres so as to nearly abolish the functions of the brain and spinal cord. It produces, among other things, profound torpor of the digestive functions, general nervous tremors, loss of control of the voluntary muscles, and great depression of the intellectual functions, amounting in man to loss of the moral sense. If survival takes place at all, it is at the expense of rational and moral qualities, as a result of which continued existence is rendered altogether undesirable. A dangerous feature of this disease is that, if it attacks a milch-cow, most of the poisonous products are secreted in the milk, and the cow shows only slight signs of illness. The contaminated milk, butter, and cheese, however, prove most pernicious to those who consume them; hence the disease is known as *milk-sickness*. Physicians practising in *milk-sick* districts say that such cases are not altogether absent from our large cities, being caused by the meat, butter, and cheese shipped from such contaminated districts, and that certain obscure cases of intestinal torpor, brain-prostration, and mental hebetude are to be thus explained. It is true that milk-sickness is an affection confined within very narrow limits, yet, like other deadly contagia, it could be largely obviated by a strict municipal professional control of all meats offered for sale.

FOOT-AND-MOUTH DISEASE is fortunately not a present denizen of this continent, but, when it does secure a footing on our shores, it threatens all mammals, and through the contaminated milk is liable to carry off our children by an acute digestive disorder.

ACTINOMYCOSIS, the LUMP-JAW of cattle, is common in man and other animals, attacking not the jaws alone, but the tongue, face, throat, abdominal organs, the walls of the chest and belly, and even the brain. As the disease is due to a slowly growing cryptogam, it has been common practice in Europe to cut off the diseased portion and put the remainder of the carcass on the market *as sound beef* forsooth. Some great feeders and packers connected with the Whiskey Trust are contesting in the courts of Illinois their right to do the same. A sound sanitary system, recognizing that this vegetable parasite can only proceed from the seeds of a similar pre-existing growth, that the seeds from any such growth may develop when planted on any susceptible raw surface or follicular recess of the body, and that its presence in isolated form in such a secluded organ as the brain proves the conveyance of the seeds by the animal fluids, must recognize that the removal of the visible deposits is no sufficient guarantee, and that the condemnation of the entire affected carcass is demanded. It is quite true that the thorough cooking of the meat would render it wholesome, but the same remark would apply to trichinous flesh or to any meat in which the dangerous factor is a living organism. That man suffers extensively from the disease is witnessed by reports in the medical journals of from two hundred to three hundred cases in the course of a few years past. The danger is, therefore, far enough from being a merely imaginary one.

I need not try your patience by following this list further. I might speak of *malignant edema*, and other forms of *septicemia*, of *erysipelas*, of *pyemia*, of *gangrene*, of *echinococcus*, of the *beef and pork tapeworms*, of *trichinosis*, of the *infective osteitis* of young animals, and of still other infections and parasites that we reciprocate with our brute possessions. I might speak of the leukomaines and toxins of overexertion and excitement, and of the ptomaines and other poisons of decomposing and putrid meats, of the inoculation of live stock with animal venoms, of the impregnation of the flesh with vegetable narcotics, which, though harmless to certain herbivora, are deadly to man, and of the presence of certain inorganic agents, which, like phosphorus, are most injurious to the human organism. I might go on to show that in all

conditions of high fever and in various other forms of disease the flesh becomes unwholesome and innutritious. Finally, I might go over the whole list of zymotic diseases that respect the human family, but are contagious from animal to animal, decimating herds, depressing agriculture, and reducing the quantity and raising the price of meat.

I have said enough, however, to show that comparative pathology at the end of the nineteenth century is such as to justify and demand a scientific inspection of our live stock offered for food or furnishing dairy products, and no less so of carcasses presented for human consumption. By scientific inspection I mean, not the untaught glance of the man who has graduated from the stockyards, the shambles, or the army commissariat, but the skilful scrutiny of the professional man, trained in comparative pathology, up to date in the sciences of bacteriology and parasitism, and having at his command modern methods of work and instruments of precision. I cannot too much deplore the low estimate put by the public on such work. The political representatives of this State at Albany voiced the general ignorance in enacting a law giving the title of veterinary surgeon to all who would testify that they had prescribed medicinally for sick animals for a period of three years, and now every county in this State has its crowd of registered veterinarians, utterly innocent of all knowledge that goes to make up the armamentarium of the comparative pathologist, but nevertheless duly licensed to poison, maim, and slay the valuable flocks and herds of the Empire State. A few days ago a gentleman whose horse had his hoof wrenched off in crossing a railroad track was told by the superintendent of the road that he should have applied to him and he would have sent him to the best veterinarian in New York. The practitioner so designated by the superintendent turned out to be one of those registered veterinary surgeons who had graduated from the stable, and by act of the Legislature had been endowed with all the rights and immunities that pertain to the comparative pathologist. The gentleman, however, knew better and saved his horse.

If the action of the Legislature and of the railroad magnates is to be taken as a proper gauge of public opinion, it is not surprising that New York has done next to nothing, as a

State, for the education of the veterinary physician and sanitarian. Such education has been left to private enterprise, and as a matter of course it must be restricted by financial considerations, and the length and thoroughness of the course of study must remain a consideration secondary to the resultant income. It is useless to deny that veterinary education has suffered seriously from this cause, so that the possession of a diploma of one of the schools is not necessarily a guarantee that the owner is a desirably educated man. He has received some training, however, in the fundamental principles of comparative disease and medicine, and if his preliminary education is such as to permit it, and if he is sufficiently industrious, he can carry on his education and make himself an accomplished man.

In Europe, with a system of veterinary schools equipped and controlled by government, they do better. The matriculant must be a B.S. or B.L., or he must hold a first-class professional certificate from a gymnasium, and must thereafter pursue a course of study for four entire years before he can present himself for the final examination for a degree. The records show that even then not more than one third secure the coveted diploma, and the remainder have to take a fifth or even a sixth year before that desired goal is reached.

If America could have similar government colleges we would be enabled to secure veterinary sanitary officials of the high quality required. In the absence of government schools, something should be done by some of our wealthy universities; but even with them we see as yet hardly the first faint ray of recognition of this great need of the country. Each institution earnestly competes with the others in establishing rival schools of classics, of the general sciences, of philosophy, and many in developing colleges of economics, of law, of agriculture, of architecture, of engineering, of mechanics, of medicine even; but this one subject, which lies at the foundation of all sanitary control of our meats and dairy products, of the preservation and soundness of \$2,000,000,000 worth of live stock destined for human consumption, the pathology of our great animal industry, which is essential to the permanent fertility of our soil, is persistently ignored. The University of Pennsylvania and Harvard University have now made a

beginning, and we may hope to see a better recognition of this subject in the future.

Of our 43,400,000 cattle, it is estimated that 3 per cent are tuberculous, while the ratio in dairy cows rises much higher. If, however, we count only 2 per cent on our 95,200,000 cattle and swine, we have in round numbers 2,000,000 domestic animals daily exposing man and beast to this terrible contagion, and we have a large proportion of these yearly sold from the butchers' stalls as human food. Though we ignore all the other animal diseases communicable to man and confine our attention to this alone, we may well ask, in the light of our sanitary knowledge of to-day, Is it less than criminal to neglect this source of danger, so manifest and so preventable, or to delay educating men for this sanitary service?

The education of efficient men is, however, not enough. Arrangements must be made whereby these men will be enabled to perform their work with system and thoroughness. Our perfunctory plan of inspecting the carcass in the butcher's stall is utterly insufficient. Some contagions that render the meat deadly may at given stages of the disease show to the unaided eye little or nothing abnormal on inspection of the dressed carcass. Splenic apoplexy is a notorious example of this. It follows that the subject must be made to pass the scrutiny of the skilled eye before death and during slaughtering, and that instruments and methods of precision must be called into requisition whenever they may be needed. Such inspection, however, often becomes practically impossible in the private slaughter-house, where the proprietor can control the opening and closing of the doors, the hours of slaughter, the disposal of the products, etc. To secure a satisfactory inspection the abattoir must be a public municipal institution, under strict regulations, and in which all butchers may hire at low rates the facilities necessary for slaughtering and utilizing the products. Apart altogether from the sanitary inspection of meats, this has been generally found to be the most economical, cleanly, inoffensive, and in every way most desirable method; when, therefore, it is also the only method that can insure that the inspection shall be satisfactory it may be held imperative on every city to adopt it. The advantages of one central abattoir appear to have been first realized by a

guild of Roman butchers in the days of the ancient empire, but the true municipal abattoir, owned and controlled by the city, we owe to the first Napoleon, who projected those of Paris in the later years of his reign, showing a wise example, which has since been followed by nearly all of the great cities of Europe. The concentration of the work of slaughtering has been attempted in Boston, Philadelphia, and New Orleans, and to a lesser extent in New York, but in nearly every case the ownership has been vested in a private corporation, so that the greatest benefits to the butcher and the public have failed of realization. To give an example of the economy of municipal ownership, the Edinburgh abattoir rents a slaughtering booth, pen, and yard, with all facilities for the utilization of the products, for \$40 a year. To the butcher, therefore, it is a real economy, and this object must never be lost sight of in sanitary administration. The community has a right to protect its health by the control of slaughter-houses and the rigid scrutiny of all sources of its meat-supplies; but if in so doing it imposes any undue or unnecessary burden on the honorable butcher, it will only serve to arouse opposition and defeat its own ends. Hence the granting of a charter to any company to erect and maintain an exclusive abattoir is, in my opinion, a most unwise procedure. A public building, owned by the city, controlled by the health board, and conducted on principles specially favorable to the butcher, is the ideal provision, and such an establishment faithfully administered must soon establish its claim to permanence.

As regards the dressed-meat trade, it is manifest that as yet the same strict inspection cannot be applied. It is to be hoped, however, that ere long our cities will be supplied with carcasses stamped with a certificate of soundness, as is now furnished with the meat shipped to Europe, and that the authorities may be able to obtain the assurance of the thoroughness and reliability of such inspections, whether conducted by government or municipal agents.

Like all reforms, this sanitary inspection of meats and meat-sources will be opposed on the ground that what was good enough for our fathers can be safely borne with. Such an argument, however, proves too much. Could Buffalo

maintain her prosperity if the lakes were cleared of all steamers and the traffic once more remanded to sailing craft? Could her business be conducted in the absence of telegraphs, telephones, gas, and electric lighting systems? Could she safely abolish her sewage system or her steam fire-engines? Would it be less than criminal to go back even to untrapped or unventilated sewers? Could the modern surgeon be tolerated if he ignored alike anæsthetics and aseptic operations?

Every age has its own status of knowledge, and such knowledge entails a corresponding measure of responsibility. What was an advanced position for our great-grandparents would be a reprehensibly antiquated and effete measure in our own day, clogging the wheels of progress and dooming a community or nation to decadence. It is true to-day as in the days of Isaiah, "The nation and people that will not serve the Lord shall perish, yea, that people shall be utterly wasted" (Isa. 62 : 12). With our fuller knowledge of the laws of God's universe, we have a greater trust imposed upon us, and unless we recognize these laws and harmonize ourselves with them in every sphere of human activity we shall fail of our stewardship and lag behind in the general progress. There is a profound truth in the Socratic aphorism, "Vice is ignorance; virtue is knowledge." We can modernize it by saying, "To ignore the knowledge of to-day is vicious; to avail of it and practise it is virtuous." Whenever we step aside from a utilization of all available knowledge and skill for the advancement of the material prosperity of the people and the general sanitation we become recreant to our trust, and no consideration of petty economy, of party success, or of national indebtedness to an unfit candidate can remove our action from the category of the vicious and destructive. In regard to the main subject before us—the inspection of animals and meats—we have the highest moral as well as material reasons for securing skilled and honest officials. The movement is destined to conserve the numbers and health of our live stock, without which the native fertility of our soil must steadily decline, and it is destined to protect that most sacred of all trusts, the health and lives of our people, and in consequence the power and prosperity of the nation.—*Medical News*, August 27th, 1892.

THE PREVENTION OF DISEASE IN MASSACHUSETTS.

THE SHATTUCK LECTURE FOR 1892.*

By J. F. ALLEYNE ADAMS, M.D., of Pittsfield, Mass.

THE professional life of the founder of the Shattuck Fund extended over the first half of the present century. Preventive medicine, as a science and an art, had in the United States as yet taken no root ; but, in the prophetic minds of the medical thinkers of that time, the seed was germinating which was in the next generation to put forth the tender leaf, and in our day to grow into a goodly tree. Science and philanthropy united in teaching these wise medical fathers that to prevent disease is even better than to cure it ; and in the front rank of these scientific philanthropists was Dr. George Cheyne Shattuck. In selecting, therefore, for this paper a title relating to the prevention of disease, choice has been made of one of his favorite themes. In confining it within the geographical limits of the Commonwealth of Massachusetts, respect is had to the patriotic preference expressed in the terms of his bequest.

To what extent is it possible to prevent disease in this Commonwealth? What has been accomplished in this direction, and what more remains to be done? What are the special needs which to-day are calling for concerted action on the part of the medical profession? In asking your attention to a consideration of these questions, I feel confident of a sympathetic hearing ; for the subject is one in which the Massachusetts Medical Society has not only a lively interest but a peculiar title of proprietorship. It cannot be wholly relegated to health officials and special associations, for it is the medical practitioners, as a body, who give vitality to the work. It is the doctors who, in their daily intercourse with the people, are educating them in sanitary matters, it is the doctors who have been instrumental in the enactment of sanitary legisla-

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tion, and it is the doctors who stand behind the health authorities with ever-ready help. The Massachusetts Medical Society is imbued with a true missionary spirit. Its members gladly spend themselves in this cause, which not only brings no pecuniary return, but even threatens to deprive them of a livelihood. Its efforts for the prevention of disease began before any official action was inaugurated. To us as a Society belongs much of the credit for what has been done, and upon us largely rests the responsibility for its effective continuance.

It is well known that Massachusetts was the first State in the Union to establish a State Board of Health, and that the founder of the Board was a distinguished member of this Society. It was Dr. Bowditch's writings on sanitary subjects and his personal influence upon public men which brought this Board into being; and it was he who, as its first President, gave it a successful start in its useful career. Since our last meeting, this great and noble-hearted man has passed from among us; and profound grief for his loss is the dominating sentiment of this occasion. How can we better do honor to his memory than by occupying ourselves for a time with one of the departments of medicine in which he was a pre-eminent leader?

During the twenty-two years which have elapsed since the establishment of the State Board of Health, our State has enjoyed the benefit of systematic sanitary work, the great scope and thoroughness of which is known to those who have watched its operations or read its series of annual reports. Investigations of the utmost practical value have been carried on, and with the aid of local boards of health a vigorous warfare has been waged against the causes of disease, with a special view to the prevention and suppression of epidemics. An interesting sketch of the work of the Board was given by its President, Dr. Walcott, in the Annual Address before this Society in 1889.

Now, after twenty-two years of this excellent work, we are justified in inquiring as to the results, and even in confidently looking for such results in the statistics of mortality. Although it would not be fair to judge this work wholly by statistics, yet there is no other test which has the merit of accuracy. The trustworthiness of the Massachusetts Regis-

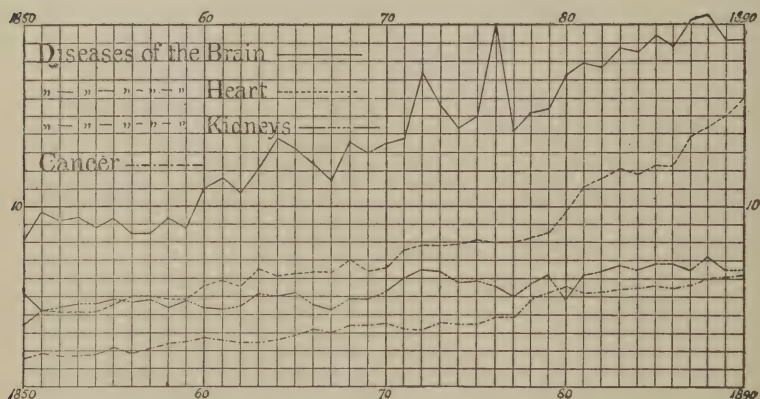
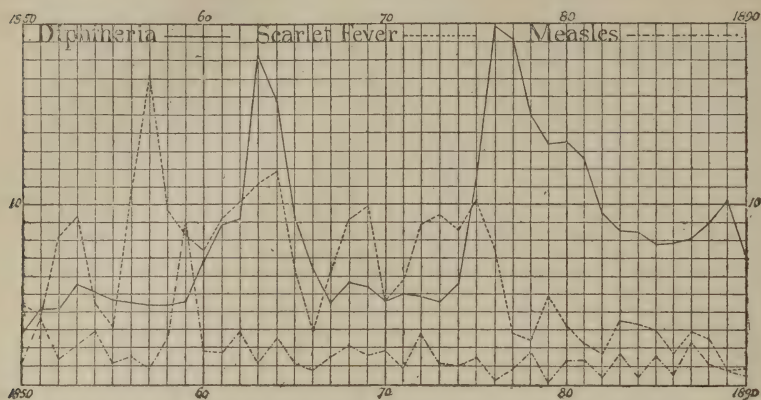
tration Reports is generally conceded, our State being no less distinguished among the others in this respect than in that of priority of sanitary legislation. Nowhere, therefore, in the United States are the conditions so favorable for estimating the value of public health measures as in this State of Massachusetts.

In inquiring what change has taken place in the death-rate of our State, are we not justified in expecting to find a material decline? For my own part, I had hoped to discover quite a handsome reduction. Imagine, then, my surprise and disappointment at finding that the death-rate of Massachusetts has remained practically unchanged. The average for the past forty years has been 19.35 per 1000, while for 1890 it was 19.44, a trifling increase. Dividing this period of forty years into decades, we find the average death-rates for each decade to be 18.24, 19.43, 19.81, and 19.59. Thus there was a slight increase in the death-rate which reached its maximum in the third period. The average for the fourth decade was slightly less than the third, and yet was higher than either the first or second. The best that can be said is that the upward tendency was arrested about 1884, since which time there has been a slight irregular downward tendency.

But, unsatisfactory as this showing is, we must not be hasty to conclude that nothing has been accomplished and that the movement for the prevention of disease has proved a dismal failure. Let us rather analyze the death-rate, to ascertain whether there are any special directions in which an improvement can be discovered. My own studies in this direction have proved profoundly interesting, and have resulted in the discovery that the mortality from certain diseases is decreasing while that from others is increasing, the gain and the loss so nearly balancing each other as to produce but little impression upon the general death-rate.

In order not to weary you with statistics, I have prepared diagrams which show at a glance the comparative mortality from twelve principal diseases or classes of disease during the forty-one years from 1850 to 1890.

In these diagrams, the vertical lines correspond to the number of years, and each horizontal line represents one death to 10,000 of population. Each of the irregular lines, or curves,



therefore, indicates the number of deaths from a specified disease, in each year, to every 10,000 of population for that year.

In the preparation of these statistics, I am indebted for much valuable aid to Dr. S. W. Abbott, Secretary of the State Board of Health.

An examination of these several curves shows that five of them have a decided downward tendency. These are small-pox, scarlet-fever, measles, typhoid-fever, consumption.

Observing these in detail, we find that *small-pox* declined irregularly from 1850, recurring in epidemics about once in five years, the epidemics lasting two to three years, until 1872-73, when a great epidemic which extended all over the country caused the heaviest mortality on record in this State,

the number of deaths in 1872 amounting to 1029, and in 1873 to 668. The following year they had fallen to 26, since which time they have steadily tapered off until 1886, when not a single death occurred from this cause. In 1890 there was but one death.

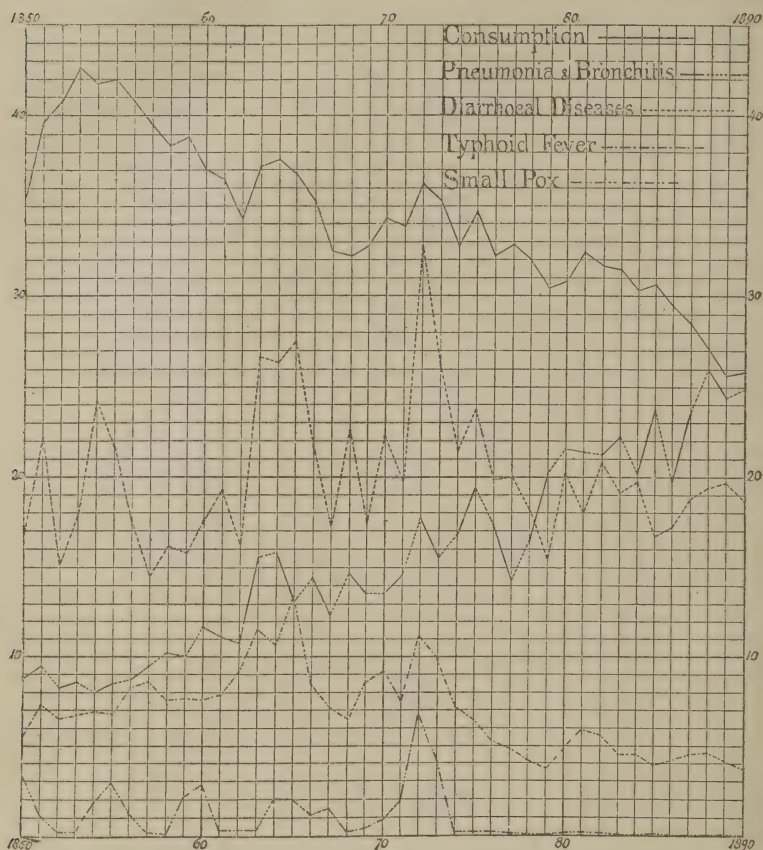
Scarlet-fever and *measles* have both decreased in each decade since 1850, the epidemic waves showing a receding tide. For *scarlet-fever* there was but little difference between the average of the first and second decades; the third showed a marked decrease, and the fourth the sharpest decline of all. Measles, however, owing to the severe epidemic of 1859, made the greatest fall in the second decade, since which time the mortality has been low and declining.

Typhoid-fever increased in the second decade, the maximum being reached in 1865, since when the fall has been decided, though undulating.

The fall in the death-rate from *consumption* is very striking, each decade showing a decrease since 1850. The decline was the most marked in the second decade, and has been comparatively steady since 1860.

The curve for *diphtheria* and *croup* shows two great epidemics, reaching their height in 1863 and 1876, the third decade having the highest average. Since 1876 there has been a fall, well marked but not great, so that the average for the last decade, though lower than the third, is still a trifle higher than the second, and almost double that of the first.

The *diarrhœal diseases* exhibit a mortality greater than any of those yet mentioned, except consumption. The list includes cholera infantum, to which are attributed more than half of the deaths, dysentery, diarrhœa, cholera morbus, and enteritis. The mortality from these is seen to be irregular. The highest average was reached in the third decade, which was, however, but little above the second. The fourth is lower than the second or third, but still a little higher than the first. The highest point was reached in 1872. A more favorable showing could be made by selecting cholera infantum and dysentery; but the figures are liable to be so largely affected by uncertainties of diagnosis and nomenclature that it has seemed best to consider the diarrhœal diseases only as a whole.



If we now examine the curves for bronchitis and pneumonia, diseases of the brain, heart and kidneys, and for cancer, we find one observation to be true of them all—namely, that they have all increased in mortality, and that each of them has increased in each decade since 1850.

The most remarkable increase is shown in the case of bronchitis and pneumonia, the death-rate from which was more than three times as great in the last decade as in the first. This increase has been enough to slightly more than compensate for the decline in consumption. The query, therefore, which naturally presents itself, is whether we have not here, again, to deal with a question of diagnosis rather than of fact. Very likely we have, to a certain extent; but an ex-

amination of the ages at which the deaths occurred will convince us that this is not the only explanation. Thus we find that, first, the increase of bronchitis is largest during the first two years of life, and next largest after the age of fifty, these being the ages when consumption is least fatal; and, second, that if we add together the total deaths from consumption, bronchitis, and pneumonia for the several age periods, for the two years 1861 and 1890, we find an increase of these aggregated lung diseases under the age of five years and between the ages of forty and fifty, but a decrease between five and forty, and over fifty. The most marked decrease is between the ages of fifteen and thirty. As the gain therefore is greatest at the ages most prone to consumption, we may safely conclude that there is an actual falling off in the mortality from this disease.

The increase in the mortality from diseases of the brain, heart and kidneys, and from cancer, is very remarkable. Diseases of the brain have increased twofold, those of the heart threefold, and cancer nearly threefold, while diseases of the kidneys and dropsy, taken together, have increased about 50 per cent. This means, of course, in proportion to the population. The actual increase has been twice as much, the population of the State having doubled in the forty years.

Thus we may provisionally classify diseases in two groups, those which are decreasing and those which are increasing. Let us now inquire what other features characterize these two groups.

In the first place we observe that all of the decreasing diseases except consumption belong to the zymotic class. Even consumption it is hardly possible, at the present day, to exclude from this group, though the nosologists still retain it among the constitutional diseases. Now, these same zymotic diseases are the very ones which are most amenable to preventive measures, and against which these measures have been chiefly directed.

Small-pox has been vigorously fought by vaccination, quarantine, inspection of imported rags, isolation of cases, and disinfection. The result is one of the greatest triumphs of sanitary science, for this disease, once so frightful in its ravages, is for the present practically stamped out.

Scarlet-fever and *measles* have been combated by isolation and disinfection, and by the protection of school children by forbidding the attendance at school of any children liable to convey the infection.

For the prevention of *typhoid-fever* every effort has been made to ensure the purity of drinking water, the improvement of sewerage and local cleanliness. The thorough and systematic work of the State Board of Health in relation to the water supply and sewerage of the State is of inestimable value, both present and prospective, and is worthy of our grateful recognition.

The decline in the mortality from these four diseases, small-pox, scarlet-fever, measles and typhoid-fever, has been so marked during the past twenty years, since the establishment of the State Board of Health and the generally increased attention to sanitary measures, that it is impossible to avoid the conclusion that these facts stand to each other in the relation of cause and effect, and that to our sanitary laws and their careful execution may be attributed the falling off of the death-rate from these diseases.

That the same notable decrease is not found in the case of the diarrhœal diseases and of diphtheria and croup is disappointing, and yet it is satisfactory to find that, though the improvement is less, it is not insignificant, and that it has been continuous for periods of fourteen and eighteen years respectively. The great difficulty in the case of diphtheria is its virulent contagiousness and persistent infectiousness, facts which have been very strongly presented by Dr. S. W. Abbott, in his recent admirable paper on "Diphtheria in Massachusetts;" but which, as yet, appear to be inadequately understood by the public. The causes of the diarrhœal diseases are difficult to reach, the controllable factor of local or general filthiness being influenced powerfully by the uncontrollable factor of intense summer heat; while a third factor—namely, bacteria in milk—is liable to elude the most active vigilance. But all of these problems are receiving the careful attention of the sanitary authorities, and their satisfactory solution may be hopefully expected.

The zymotic diseases as a class have diminished from 474 to each 100,000, in 1870, when the State Board of Health

began its work, to 360 to each 100,000 in 1890. This is equivalent to a saving of over 2500 lives in 1890, and is a result of which the Board and every citizen may well feel proud.

How far the decrease of *consumption* may be attributed to sanitation is a question not readily answered. The agencies likely to affect this disease have been the better ventilation of school-houses, factories, and public halls, the improvement of tenement-houses, the drainage of wet cellars, and the weeding out of tuberculous cows. While some good results from these agencies are to be expected, yet they are wholly insufficient, and are not likely to have caused the very marked decline which the statistics show. One important fact which must not be overlooked is the removal from the State of great numbers of consumptives to more favorable climates where, if they die, their deaths are not charged to the State of Massachusetts.

While thus we find that all of the diseases which are decreasing are those against which the efforts of the sanitary authorities have been actively directed, the converse fact is equally striking—namely, that the increasing diseases are either not amenable to public preventive measures, or have not yet been subjected to such measures. No official method of preventing diseases of the brain, heart, lungs or kidneys, or of cancer, has yet been discovered, and in the present state of science we cannot expect the health boards to control them in any way whatever. The increase of these diseases cannot therefore be attributed to any lack of efficiency on the part of the health officers, nor is there any just debit to offset the 2500 lives a year which we have just placed to their credit.

The second general feature which characterizes these two groups of diseases is this: that the diminishing diseases are chiefly those of early life, while the increasing diseases are those of later life.

Of the deaths from measles in 1890, nearly all were under ten years of age, and more than half under two years. From scarlet-fever and diphtheria the maximum mortality was between five and ten years; and nearly all of the deaths occurred from the former under fifteen years, and from the latter under thirty years. From the diarrhœal diseases, more

than 83 per cent occurred under five years. Typhoid-fever and consumption are especially diseases of early adult life, and both attain their highest mortality between the ages of twenty and thirty. In striking contrast with these are the increasing diseases. Diseases of the heart are most fatal between the ages of fifty and eighty; brain diseases between seventy and eighty, and kidney diseases and cancer between sixty and seventy. As regards pneumonia, although the first year of life is the most fatal, yet one half of the deaths occur after the age of forty, and the most fatal period after the first year is between the ages of sixty and seventy.

At this point it is necessary to inquire what relation this excessive mortality at the later ages bears to the number of persons living at those ages. The census of 1880 shows that the population of Massachusetts embraced in that year a larger percentage of persons over sixty years of age than any other of the United States with the exception of Maine, New Hampshire, Vermont, and Connecticut. It also included a smaller proportion under five years of age than any other State with five exceptions. Moreover, the population under fifteen years is decreasing, and over fifty is increasing. Yet neither of these facts will explain the decrease of mortality in early and the increase in later life; for when we compare the deaths at given ages with the number of persons living at those ages, we find a decrease at all ages below forty, and an increase at all ages above forty. The decrease is greatest between five and thirty, and the increase grows greater and greater in each ten years from forty upward. The natural effect of this condition is to increase the number of persons living to middle age, but to reduce the proportion of very old people. The effect upon the average duration of life has been to increase this average in the last forty years from 27.07 years to 34.13 years, a gain of over *seven* years; a remarkable fact when taken in connection with the unchanged death-rate and the increased mortality of old age. This gain, therefore, belongs wholly to early life, and shows that children have now a better chance than forty years ago of living to maturity, and of passing safely through the producing and reproductive age. The change is therefore in that direction which is, beyond all others, of material value to the Commonwealth.

It is difficult to institute any comparison between the statistics of Massachusetts and those of other portions of the United States, partly because the compilation of the vital statistics of the census of 1890 is not yet completed, and again because the superior accuracy of the Massachusetts registration gives our State an excessive death-rate as compared with other States, which is more apparent than real. But when the new census is completed, we may expect results of great value, worked out under the skilful supervision of Dr. John S. Billings. One observation, however, may here be made, which is that the diseases which are here decreasing are those which in 1880 were in Massachusetts below the average for the United States, and those which are increasing were, in that year, well above that average; showing that these disease-tendencies are, at least in their excessive manifestation, peculiar to our own section of the country.

In order that we may have a more definite basis for comparison, let us refer briefly to the vital statistics for England and Wales. From 1850 to 1880 the death-rate of Massachusetts was almost invariably lower than that of England and Wales, but since 1880 the rates have been almost identical, the death-rate over there having showed a pretty steady decline since 1875, and now having crept a little below ours.

An examination of the causes of death in England and Wales shows a very similar state of things to that which exists in Massachusetts—namely, that the zymotic diseases and consumption are decreasing, while there is a decided increase in acute diseases of the lungs and in diseases of the heart, kidneys, and cancer. The chief exceptions are the following: *diphtheria*, which decreased in earlier years, while it was increasing in Massachusetts, has since 1880 been on the increase in England and Wales. The decrease in small-pox has not been so remarkable as in Massachusetts. The mortality from diseases of the brain in England and Wales shows no marked increase, but still is much higher than in Massachusetts, where the increase has been very rapid.

In regard to the actual mortality, the chief differences between Massachusetts and England and Wales are these: we have a larger proportion of deaths from diphtheria, diarrhoeal diseases, fever and consumption, while England and

Wales have a larger proportion from small-pox, measles, scarlet-fever, acute lung diseases, diseases of the brain, heart and kidneys, and from cancer.

For the data for these comparisons I am indebted to Longstaff's "*Studies in Statistics*," a book which might appropriately have been entitled "*Arithmetic made Interesting*." It was not till after my examination of the Massachusetts statistics that this delightful volume came into my hands, and I was much interested to find so strong a general correspondence between the disease tendencies of these two widely separated communities, a correspondence indicating the presence of similar social forces. Concerning the decrease in the zymotic diseases, Longstaff says (p. 235):

"It seems impossible to dissociate this great saving of life from the operation of the Public Health Acts, and more especially the indirect results of this as shown in the proceedings of such bodies as the Sanitary Institute, the exhibition of sanitary appliances under various auspices, and other proofs that public attention has been drawn to these matters. The fall in the death-rate from fever is without doubt the great triumph of the sanitary reformers. Typhus has been driven out from place after place by measures taken to check overcrowding and want of ventilation until it now lingers only in the lowest quarters of a few large towns. Things are not perfect yet, far from it; but they were once much worse, and that not so long ago."

"Things are not perfect yet." These words used by Mr. Longstaff concerning his own country are equally true in Massachusetts, where more than 8000 persons died in 1890 from the zymotic diseases alone. If 8000 lives are destroyed in a single year by preventable diseases, surely prevention has not yet done its perfect work. We must remember also that the baleful influence of the zymotic diseases cannot be measured by their mortality alone; for many who recover from them are left with weakened constitutions or with some organic affection which impairs their usefulness and shortens their lives. Such are diseases of the kidneys resulting from scarlet-fever, of the lungs from measles, and of the heart from diphtheria. The results thus far accomplished, however, are substantial and encouraging, and a sufficient vindication of our

sanitary laws and the mode of their enforcement. The indications for the future are that these efforts must be no whit relaxed, but must, on the contrary, be increasingly strenuous. To relax them at any point would entail direful consequences. The contagious and infectious diseases are like fire which must be fought unceasingly until it is extinguished. Left to itself it will burn until the inflammable material is all consumed. With all that has been done, we have seen how small are the results in some very important directions. Small-pox is the only disease which can be said to be almost extinguished ; and yet the smouldering spark of even a single case of small-pox is sufficient, with the least removal of the agencies which hold it in check, to flash up into the blaze of a desolating epidemic. Even in our present immunity lurks a future danger ; for the further we get away from an epidemic and a scare, the larger will be the proportion of persons unprotected by vaccination.

Our aim should be the ultimate extinction of all germ-diseases ; but when this will be accomplished I do not venture to predict. The condition most favorable for such a happy result would be an isolated community holding absolutely no intercourse with the rest of the world. Here a war of extermination against all disease germs might be successfully waged, supposing such an isolated people to be possessed of the requisite intelligence or to find life sufficiently interesting to care for its preservation. But Massachusetts is not thus isolated, nor is it possible in this age that such a condition should anywhere obtain. Emigration, trade and travel cause a constant intermingling of peoples. Quarantine, to be sure, acts as a check upon the importation of disease from abroad ; but evidences of the impotency of quarantine are alarmingly frequent, and interstate quarantine is impossible. Our State might be free from zymotic diseases to-day, and yet by to-morrow a full assortment of them might be brought within our borders. Herein lies the great obstacle to the stamping-out process ; and it is therefore safe to say, if pressed for a prediction, that the epidemic diseases cannot be eradicated from Massachusetts until they are likewise eradicated from every part of the world. That such a time may come we may venture to hope. Whether or not we believe in it as a practical possibility, we should be satisfied with no lower ideal.

But if epidemics cannot be kept *out*, we may reasonably hope to keep them *in*; and here is the true principle which should guide our efforts. Every city and town should see to it that no epidemic disease is allowed to spread beyond the first case, and on no account to pass beyond its borders. This is already the aim of the boards of health; but in order to achieve success, these boards must be aided by an intelligent public, and especially must they have the active and watchful co-operation of the whole medical profession.

There is one particular direction in which, it seems to me, that we doctors can, at this time, render material service in this cause; and that is by making a concerted effort to secure the general adoption of *disinfection by steam*. The modes of disinfection now in use after a case of infectious disease are very diverse, and seldom sufficient. If the germs do happen to get destroyed, it is apt to be at the cost of a ruinous destruction of property. Especially is there no thorough and convenient way of disinfecting mattresses, pillows, and carpets. What is needed is a receptacle of sufficient size in which these may be placed and subjected to a moist heat in the form of steam under pressure. By a pressure of ten pounds, a temperature of 230° F. is obtained, a continuance of which for fifteen minutes is found to be sufficient. Dry heat requires a much longer exposure, at least two hours, and even then is not certain. Superheated steam, which is practically dry heat, has been tried and found wanting. But steam under pressure can be kept at a sufficient temperature and forced into the centre of any porous material, with the result that every germ becomes thoroughly cooked. Various forms of apparatus for this purpose are made in France, England, Germany, and Holland. They have not yet come into general use in this country, though this method is employed, in some form, in most of our large hospitals. It has also been adopted, within two or three years, at the quarantine stations at New Orleans and Charleston. At New Orleans superheated steam had previously been tried on a large scale, but abandoned. The disinfecting oven made by Geneste, Herscher & Co., of Paris, is very complete, and may be taken as the type of this form of apparatus. This consists of a sheet-iron cylinder, sheathed with wood to prevent radiation, with a door

at each end fastened by clamps. Within the cylinder, above and below, are coils of steam-pipe for the preliminary heating of the chamber, to prevent condensation. Another pipe pierced with small holes traverses the side of the cylinder and admits the steam to its interior. The articles to be disinfected are placed in a carriage or rack which runs upon a track into the oven. After the doors are fastened a dry heat is first obtained by admitting steam to the coils of pipe. Steam is then admitted directly into the cylinder and the air allowed to escape. Then the outlet is closed and the pressure of steam kept up for about five minutes. The steam is then permitted to escape, and admitted a second time. By this intermittent action, the most complete penetration of the articles under treatment is secured. Even the heart of a mattress becomes as hot as its surface. These ovens are made both stationary and portable. The stationary form is built into a wall in such a way that the opposite ends open from separated rooms, whereby any mixing of infected and disinfected articles is avoided. These ovens are from 7 feet to $7\frac{1}{2}$ feet in length, by 3 feet 8 inches to 4 feet 4 inches in diameter. The portable apparatus is smaller, has a door only at one end, and with its upright boiler strongly resembles a steam fire engine. This weighs 2400 kilogrammes (5291 lbs.), is drawn by a pair of horses, and costs in Paris \$1340. The stationary form costs \$980 to \$1282, according to size. These are extensively adopted in France, and are under municipal control, being placed free of cost at the service of the public.

The steam disinfector of Washington Lyon of London is similar in principle, but is made with a double casing instead of the steam coils. It is also oval in form and is only made stationary. I see no reason why disinfectors of this type should not be made in our own country, and cheaper than they could be imported. If every town in Massachusetts, or at least the larger ones, owned such a disinfector, the arrest of epidemics would become a much easier matter than it is at present. If the portable form were adopted, it could be sent to neighboring towns or villages. If the stationary form, the articles to be disinfected would be packed in bundles or bags and conveyed in a special wagon to the disinfecting station.

Let us all make a business of calling the attention of the authorities and the public to this matter.

The reduction of the mortality from *consumption* is one of the greatest of sanitary needs ; for this is, in our climate, the most destructive of all diseases. Great as has been the apparent decline in the last forty years, it still holds its place at the head of the list, having caused in 1890 5791 deaths. Moreover, its mortality being greatest in the most active period of life—that of young manhood and womanhood—the loss to the community is peculiarly heavy. In Massachusetts the mortality from this disease is greater in the eastern than in the western counties, and is greater in the cities than in the country. Our Irish population suffer more severely than any other class, and the large proportion of this nationality in our population is one cause of our high death-rate from consumption.

The discovery of the tubercle bacillus adds consumption to the list of germ diseases, and indicates modes of prevention from which we are justified in expecting great results. Hitherto, our efforts have been directed to the overcoming of hereditary tendencies and the improvement of the environment ; now it appears that there is one element in the environment more dangerous than all others, and this is the venomous little bacillus. That consumption is both contagious and infectious can no longer be doubted. Instances of evident contagion have come under my own observation ; and doubtless many members of this Society could report similar cases. How else can we account for the phenomenon which is frequently presented to us of several brothers and sisters in a family dropping off, one by one, from this disease, with no hereditary tendency and no unsanitary surroundings ? And what can we say of those cases where a healthy young person suddenly breaks down with consumption shortly after nursing or paying a loving visit to a consumptive friend ? Hereditary predisposition exists in not over 30 per cent of all cases, and this is probably an excessive estimate. Of the deaths in Massachusetts therefore, in 1890, 70 per cent, or 4053, had no consumptive antecedents. Without contagion, this is a puzzling fact, but granting contagion the mystery is removed.

That the bacilli which swarm in phthisical sputa are capable

of conveying the disease to a healthy person, whether in the fresh or dry state, is now so positively determined that it becomes the duty of all medical men to explain the matter to their patients and their patients' families, and to insist upon such precautions as tend to prevent the spread of the disease. These precautions may be summed up in a few simple rules such as these :

1. Let all sputa be carefully collected and destroyed by fire.
2. Let sputa never be deposited on handkerchiefs, carpets, floors, or any other place where it may dry and become mingled with the atmosphere.
3. Never drink from the same glass with a consumptive.
4. Never kiss a consumptive upon the mouth.

These rules are equally applicable to pneumonia and perhaps also to bronchitis. It will, therefore, be best to call them, not rules for consumptives, but for *all persons who cough and expectorate*. This will save the patient from the shock of a positive and perhaps too hasty diagnosis.

The investigations concerning tuberculosis in cattle show how carefully we must watch the milk supply of our patients, and especially since Dr. Ernst has demonstrated that a cow tuberculous in any part may yield tuberculous milk. This fact also emphasizes the importance of forbidding a consumptive mother to nurse her offspring.

Boards of health have already begun to publish rules such as the foregoing ; but in order that they should be so generally and intelligently followed as to produce any positive results, it is necessary that physicians should persistently teach the public of their necessity.

Having thus hopefully and even confidently placed consumption among the preventable diseases, why are not the acute lung affections entitled to the same distinction? We know that they have their specific germs, and we believe in their communicability ; and though our knowledge of the natural history of these germs is as yet very limited, their very existence opens up possibilities of future prevention, and should lead us to add them, at least experimentally, to the preventable class.

Having now broadened out the boundaries of the preventa-

ble diseases to extreme and perhaps you will say unwarrantable limits, let us see for what portion of the mortality these are accountable.

For the five years ending in 1890 the zymotic diseases caused 18 per cent of all the deaths. Consumption and the other tubercular affections caused very nearly the same proportion—namely, 17 per cent, while pneumonia and bronchitis were responsible for 11 per cent. These amount in the aggregate to 46 per cent, or not quite half of the total deaths. Of what, then, is the other half of the death-rate composed? For one thing, it includes old age, to which are attributed $4\frac{1}{2}$ per cent of all deaths. The rate to the population has remained practically unchanged in forty years, being from eight to ten to 10,000. But this is not a disease. On the contrary, a death from old age, since it implies living to old age, is the greatest triumph of human vitality; and the *ultima thule* of preventive medicine is to render old age common, hereditary, and even contagious. We may, therefore, exclude old age from the list of non-preventable diseases, and the same may be said of violence, which causes 4 per cent of all the deaths.

This will leave as a remainder about 45 per cent of all deaths. More than half of this number is made up of diseases of the brain, heart, kidneys, and of cancer, and the balance comprises the diseases of the digestive organs, including the liver, of the organs of generation and locomotion, of the developmental diseases, and disorders of nutrition. It is among these, or a portion of them, that the great increase in mortality is taking place. How to arrest this mortality is one of the most important medical problems of the day, and one which it behooves the medical profession to set itself resolutely to solving.

We have seen that these increasing diseases are largely those of the latter part of life, or at ages above forty. In some respects the loss to the community is somewhat less of persons of this age than of the same number of persons between twenty and forty, which is the age of production and of reproduction. These older men and women have reared their families and have passed the age of greatest strength and activity; but they are possessed of something which we cannot spare—namely, the experience and wisdom which

belong to ripe maturity. Many and many a brilliant leader of men in politics, literature or the professions is cut down in what should be the prime of life, between forty and sixty, when he ought to have lived to seventy or eighty to give the world the benefit of those well-seasoned powers which had but just attained their full development.

These diseases of later life are largely of the degenerative type, the disintegration of tissues in one organ or another. Our great poet doctor has sung to us of chaises which "break down but never wear out," and therein has typified the human vehicle, which, like a chaise, has "always *somewhere* a weakest spot." How shall these weak spots be made strong? How can the human chaise be made to run "a hundred years to a day," or even keep in good repair for threescore years and ten? How, in short, can the long life and perennial youth of the writer of the "One Hoss Shay" be made less exceptional among men?

Before attempting to answer these questions, it is necessary to inquire what are the causes which contribute to the increase in the diseases of later life. These, it seems to me, can be grouped under two general heads, of which the first is that *this is the natural tendency of an advancing, but still imperfect civilization.*

In comparing the effects of the diseases of men with those of the lower animals, we find a marked difference. Animals, like men, are not born equally vigorous, and in the struggle for food and against enemies the weaker are soon weeded out. These also more readily fall a prey to diseases, which are chiefly of the zymotic type, and since they receive no care from their kind, they cannot obtain food, and necessarily die. It is therefore the strong and healthy only who reach maturity and become the parents of the next generation. This is "natural selection," or "the survival of the fittest." Moreover, the lower animals, being guided by instinct, naturally tend to adapt themselves to their environment. Without knowing why, they select such food as is most suitable for them, and adopt such habits as are best for their physical well-being.

But with man, and especially civilized man, the circumstances are changed. The law of the survival of the fittest

is still in force, but is modified in its action by the fact that man is governed by *will* and not by instinct, and also possesses intellectual and moral faculties whereby the selfish and cruel propensities of the brutes are, or may be, overcome. By these qualities the physical character of the race is affected in several ways. The delicate children receive the most tender care and are often enabled to grow to maturity and procreate children of their own. Diseased persons are cared for in homes or hospitals and not allowed to starve, as the brutes are ; but those who have recovered from disease are often, if not usually, left with some impairment of structure or function which is then liable to be transmitted to the next generation. Again, as it is a matter of choice with men "what they shall eat, what they shall drink and wherewithal they shall be clothed," they may and frequently do choose such a mode of life as is incompatible with integrity of structure, however perfect originally. Man's freedom of action leads him more naturally to self-indulgence than to self-restraint, and self-indulgence leads inevitably to physical degeneracy. Savage man very nearly resembles the brutes, as regards natural selection, but the tendency of civilization is not to the survival of the fittest physically, but to the preservation of impaired lives, the impairment of healthy lives, the hereditary transmission of weaknesses of structure, and consequently to the development of a race in which perfect health is almost unknown, and tendencies to disease are an universal heritage. With these tendencies we all have to contend. They are the structural weaknesses with which we are born and which, though they may not show themselves for years, are ever ready to yield to some special strain which a perfect structure would successfully resist. To these are added mental and moral inherited defects, weakness of will or overmastering desires, which cannot fail to influence the physical development.

The fundamental reason for this state of society seems to be that man is still in a transition state. He is neither a brute nor has he yet become a perfect man. The brute is well equipped for life with an unerring instinct. Man has endowments which are capable of rendering him far better service—namely, a will, an intellect, and a conscience. If this

machinery were perfect (and in the ideal man it must be perfect), man would emancipate himself from all the ills which now enslave him, and disease would vanish from the earth. But thus far, a perfect co-ordination between the will, the reasoning power and the conscience is seldom found ; and the age when it shall become so constant as to acquire the force of an hereditary racial characteristic must be regarded as extremely remote.

The conclusion is here forced upon us that a high physical condition of the race is impossible without a high moral condition, with the self-restraint which this implies ; and hence that even for the physical uplifting of the race, science requires the aid of religion.

The second general cause which appears to contribute to the increase of the diseases of mature or advancing age is *the rapid growth of cities*. It is in cities that the degenerative tendencies of civilization are strongest. The environment is more artificial, and therefore the struggle for existence is more desperate than under the more natural conditions of rural life. To the conditions which exist in the worst part of a great city the term "necessarily fatal environment" has been not inaptly applied. In London, a native of the city, of the third generation, among the lowest classes, is practically unknown. If one is occasionally discovered, he is found to be a wretched creature, stunted in body and mind, though probably the descendant of vigorous grandparents who came from the rural districts to seek their fortunes in the great city. This does not apply, however, to those city families whose means enable them to live in comfort and to spend a portion of the year in the country ; and yet there are certain influences which affect all classes. The endless excitement of city life, the furious competition, the desperate struggle which all are making, some for wealth or position, and others for the bare necessities of life—these are fruitful sources of disease which affect both rich and poor.

Associated with a life of great mental excitement is a general insufficiency of muscular exercise. This leads to a general prevalence of dyspepsia and lithæmia, which we know to be the underlying causes of many organic diseases. The excessive use of alcoholic stimulants also, which is most com-

mon in cities, is one of the most fruitful causes of disease. In London it was estimated by a committee of the Harveian Society that alcohol is responsible, directly or indirectly, for 14 per cent of all deaths.

In Massachusetts we must lay our plans with special reference to the city environment, for our State is approaching the condition of a mere group of cities. By the census of 1890 it has 70 per cent of urban population, being a larger proportion than any other State in the Union except Rhode Island. Though our State is one of the smallest, being forty-fourth in respect of area, it is the seventh in population and the second in density. The increase of population during the last decade has been greater than that of any State east of the Mississippi with four exceptions. Moreover, this increase has almost all been in the cities, and some of the smaller towns are actually dwindling.

A third cause which may contribute to the increase in the diseases of later life is the influence of the late war. A great number of our most vigorous young men were killed or died in the service, and of the survivors a large proportion were shattered in health, while of those who did not enlist, many were prevented from doing so by physical disability. Our veterans are now mostly between the ages of forty-five and sixty-five, and it is evident that the average vigor of men at these ages must be less than it would have been but for the destructive effects of the war upon the young men of thirty years ago. The death-rate for veterans is, according to Dr. Billings, slightly higher than the average for men of corresponding age, while the health of living veterans is below the average standard. But just how far this cause may affect the death-rate, I am unable to determine. A comparison of the male and female mortality has given only negative results. The death-rate for males was higher than for females in 1892; but so it was also in 1860, and the ratio between them for these two years is almost exactly the same. It was, in 1860, for males, 19.2, and for females, 18.2; while in 1890 it was for males, 20, and for females, 18.9. An examination of the comparative mortality from diseases of the brain, heart, and kidneys in the two sexes, shows that while these are all somewhat more fatal among men than women, the ratio between the sexes was very nearly the same in 1890 as in 1860.

The number of deaths from *unknown* causes is, through increased accuracy of registration, decreasing year by year, and this, of course, increases the number from *known* causes. The deaths from unknown causes in 1871 were 1290, and in 1890, 515. The difference between these figures is 775, and allowing for increase of population would be 946, and if this number of deaths had been correctly returned in 1871, we might now find a less marked increase in some of the diseases. But the increase in diseases of the brain, heart, kidneys, and cancer alone is four times this amount, and therefore the increase cannot be accounted for by increased accuracy of the returns.

These observations upon the causes of the increasing diseases are intended as suggestions only, and not as a complete enumeration of those causes. The subject is one which needs further investigation, and I commend it to this Society as one of the most serious and urgent of medical problems. Among the causes mentioned there are a few which stand out conspicuously, and seem to demand our especial attention. These are :

1. The general prevalence of digestive disturbances, due in part to a diet generally too rich in albuminoids and in part to a weakness of digestion caused by lack of exercise and mental strain. From these result lithæmia and disorders of the liver, with Bright's disease as one of the remote effects, while they constitute an important factor in the causation of diseases of the heart and brain.

2. A lack of general vigor due to insufficient exercise, resulting from sedentary occupations, cheap modes of conveyance, and a climate which, during half the year, makes outdoor exercise unattractive.

3. The excitement and anxiety which pervade all occupations at the present day, when men must wear themselves out in trying to keep pace with the mad rush of this age of steam, electricity, and desperate competition.

4. The intemperate use of alcoholic stimulants, than which no other cause of disease is so potent and destructive. This is an old enemy ; and yet one whose assaults are ever new.

In applying preventive measures of these diseases, it is evident that the campaign must be largely educational.

Frugal living, self-restraint, and tranquillity of mind cannot be enforced by act of legislature, while even the legal suppression of intemperance has not yet been accomplished. The work must chiefly be done by medical men in their daily intercourse with their patients. Anticipating the dangers with which they are threatened, and helping each to so order the course of his life as to pass through these dangers unscathed, constitutes the highest and the most difficult branch of preventive medicine. Though a branch which we all are practising, it is capable of broader development and demands more persistent application.

There are, however, certain ways in which much benefit may be reaped from measures of a public character.

Two of these relate to the public schools. One consists in an increased attention to *instruction in hygiene*, and the other to the general introduction into the schools of *physical training*, and in giving this a conspicuous place in the curriculum. The absence of such training has, in the past, been the greatest defect in our school system. That this defect is already being remedied in Boston and elsewhere is a most hopeful sign; and we, as physicians and humanitarians, can render the public inestimable service by using our influence to have such instruction introduced into the schools of every city and town of the State. This should be a systematic course of gymnastic drill, extending through every grade of school, from the lowest to the highest, preference being given to the Swedish system, or something of like nature; and should be under the direction of specially trained instructors. Facilities for the training of such teachers already exist in Boston, and it would take but very few years to build up such a system of physical training that the graduates of our schools would be possessed of a sound bodily development which would give them a better chance for a long and useful life than they now have, while this would in no way hinder, but, on the contrary, would greatly help, their intellectual development.

As a result of this inquiry into the practical effects of sanitation in the State of Massachusetts, we have found that these effects are not only tangible but brilliant, and constitute veritable triumphs of preventive medicine. But, on the other

hand, we have found that with these triumphs we must not rest satisfied ; for, while the hostile army of disease has been weakened in one part, it has gathered strength in another, and our partial victory is offset by severe reverses. The zymotic diseases against which our sanitary army now chiefly directs its attack, cause but a paltry 18 per cent of all deaths. In twenty years they have suffered a reduction of 30 per cent ; and supposing it were possible to keep up this rate of decrease by arithmetical progression, they would, in fifty years more, be reduced to zero. But, even if this extraordinary thing should happen, and the present increase of the local diseases should continue unchecked, the year 1940 would find us with a still undiminished death-rate.

We cannot longer, therefore, confine our efforts to the suppression of this small minority of diseases, but must plan a new campaign against the greater foe. Here new and even greater difficulties confront us, for we have to contend with causes remote, complex, and intangible ; but to seek out and attack these causes is a duty which we now see to be imperative, and the forces of preventive medicine must be brought to bear upon them with new weapons and new modes of warfare. The boards of health cannot do this alone, but the whole medical profession must be the attacking army. May we all do good and valiant service against these treacherous foes which are sapping the vitality of our race and retarding the evolution of the perfected type of manhood.

THE KEELEY FRAUD IN LONDON.

AT the last quarterly meeting of the Society for the Study of Inebriety, in London, the special subject of consideration was the " Keeley Cure." Dr. Norman Kerr, a physician of high repute, and a distinguished authority on the treatment of inebriates, presided.

The London *Lancet* of July 9th, 1892, reports the proceedings of the meeting as follows :

" The President said that hitherto temperance reformers in this country had usually worked by straightforward and intel-

ligent methods, and had exercised that most valuable quality in reformers and everybody else—patience ; and, as the magnificent results of the great temperance movement showed, a very large number of drunkards had been rescued, reformed, or cured. But human nature was very impatient, and in these latter days there had arisen a feeling among a great many people that the evil of intemperance was growing so rapidly and extending so widely, and that the consequences in the present day and to posterity were so tremendous, that they must find some short cut to temperance, some miraculous method of speedily reaching the goal which neither they nor anybody else understood. Mesmerism and hypnotism were straightforward and open remedies for drunkenness, and if applied in the presence of medical men and witnesses they could not be called secret remedies. He wished, however, specially to refer—as circumstances had arisen to render this very necessary—to a so-called secret ‘cure,’ which was named the ‘double chloride of gold cure,’ to which allusion had already been made in the *Lancet* and other medical journals, and to advocate the merits of which a meeting was convened to be held under the auspices of the Church of England Temperance Society, presided over by Bishop Barry ; but, owing to his (Dr. Kerr’s) representations to the Bishop of London and Bishop Barry, that meeting had been adjourned *sine die*. The real but unavowed object of that meeting was to float a syndicate to raise £150,000 in this country in order to purchase the right of using this so-called ‘cure’ in England ; £110,000 of this—according to the circular we had seen—was to be given in cash and £40,000 in shares to the vendors. There was to be a commercial company for pushing the golden remedy similar to other companies with which they were familiar. They were told in a pamphlet that ‘without any effort on the patient’s part’ a cure would be effected by the use of this wonderful and infallible remedy as ‘certainly as night followed day.’ Already the decoction had apparently proved, if not a golden remedy, at least a veritable gold mine. for the bottles which contained it (one of which the chairman produced) were sold in pairs, and each pair cost \$9 or 36s. There were twenty-six branches in America for the sale of this ‘cure.’ If the remedy were really a remedy for

the victims of intemperance, surely it would have the support of the leading temperance reformers in America ; but this, Dr. Kerr showed, was not the case. One writer in the *North American Review*, who had lauded this so-called cure, which he had tried, died in New York, a few months after the appearance of his article, the death of a pauper drunkard. The fact was that this falsely called 'remedy' was very dangerous, and was compounded of a number of poisonous intoxicants. They would hear from Dr. Usher, of Melbourne, who had been to Dwight, Ill.—the centre of the manufacture of the 'cure'—what he thought of it and its effects. Dr. Usher, the chairman incidentally mentioned, was about to publish a new book on 'Alcohol and its Treatment.' A distinguished analyst, a member of a great medical corporation in England—whose name the chairman was not at liberty to mention—had made a careful analysis of the so-called 'bichloride gold cure.' The dictum of this gentleman on a subject of this kind would, were he (Dr. Kerr) at liberty to name him, be received by all competent authorities without any hesitation whatever. Well, he (the analyst) found neither gold nor chlorides, but what he did find present was : water, 61.31 per cent ; sugar, 6 per cent ; a small quantity of mineral salts, principally lime, probably from herbs ; and 27.55 per cent of pure alcohol as intoxicating as port or sherry and more intoxicating than champagne and claret. And yet old teetotalers, unconscious of the composition of the 'gold cure,' had been actually recommending a so-called 'remedy' more intoxicating than champagne or claret. Not only was this compound preparation condemned by the whole medical press of America and Britain, but by the whole reputable and respectable medical profession of the United States. Having spent many years in America he could bear this testimony to the fact that although there was not there as here a system of registration, yet there were as honorable members of the medical profession in America as in Britain. The testimony of Dr. C. H. Merr, in an American journal, as to the 'results' of Dr. Keeley's treatment, showed that Colonel Mines, a few weeks after his 'cure,' died of alcoholism ; Senator Fair's son died of heart disease directly attributed to the treatment ; Walter R. Earle died a raving maniac a week after his dismissal ; Henry

Anstey died during treatment ; Dr. Miller, of Illinois, Luther Benson and Charles Vaughan became insane ; ex-Congressman Hopkins also went mad and died soon after treatment. This so-called 'remedy' was opposed to the whole true principle of enduring temperance reformation. The first thing to do with the drunkard was to cut off the poison, to stop the supply at once. Teetotalism was essential to the effectual cure of the drunkard. What, after all, was inebriety? It was a complex disease, and needed moral, mental, and physical treatment. An inebriate, to be cured, must himself have a desire to be cured, and must exercise a certain amount of will power when the narcotic action of the drugs had been swept away from the brain by the exclusion and prohibition of alcohol, then the little will power left would reassert itself.

"Dr. J. E. Usher, of Melbourne, Australia, then described a visit he had made to Dr. Keeley's sanatorium at Dwight. He was, he said, the first British physician who had visited Dr. Keeley's place. Three leading physicians from Boston, New York, and Philadelphia respectively—representing different societies—had preceded him, remained half a day or a few hours and then returned home. Six weeks later all their friends received circulars intimating that these gentlemen had been remarkable successes in the cure way. Although he had visited the place with credentials from the Government, the Cabinet and lay press of Australia, he had been traduced since he left Dwight. Dr. Keeley (who seemed very uneasy while he conversed with him) told him he had used the 'remedy' twelve years and it was very successful. He asked him what was the *rationale* of his treatment ; what prescriptions he used. Dr. Keeley replied : 'We will not go into that. I know it is all right. If you want to know anything about it the secretary or chemist will tell you.' The 'chemist' turned out to be a sort of page-boy to Dr. Keeley. He (Dr. Usher) was introduced to Dr. Blaine, the 'chief of the staff.' The staff consisted of unsuccessful practitioners, who were paid from \$3000 to \$7000 a year ; and they did all the work. Dr. Blaine took him where three rows of men were being injected in the left arm with five drops out of a little porcelain bowl containing a pinkish material—atropin really. Four of the patients wore glasses ; and they told him that they could not

see three or four days after the treatment, and became blind weeks together. Seventy per cent of the patients had glasses. They suffered, too, from giddiness. One patient had been at the institution nine weeks, he said, and was afraid to leave, because three of his 'pals,' who had left ten days before, got drunk and had to come back. Another patient remained because he said if he stayed there two or three months an aunt had promised him an annuity, and he 'wanted to see the time out.' There was a 'Bichloride of Gold Club' in which there were 'graduates' and 'undergraduates,' so-called. They did not appear to be healthy; some of them seemed to be under the influence of an opium drug—atropin. About £40,000 a year was spent in advertising or in subsidizing people to advertise the concern, which was now engineered by some of the 'smartest' men in America. The thing was most lucrative. Two bottles of the preparation cost 36s. Every man who went to Dwight had to pay \$25 down and from \$5 to \$25 a week; and all this money flowed into the coffers of the company.

"Dr. Morton (Kilburn) moved: 'That this meeting of the Society for the Study of Inebriety (of which the members are registered British medical practitioners) is of opinion that any so-called "cures" for inebriety the composition of which is not disclosed are unfit to be commended by honorable members of the medical profession, who are bound to place the full details of their treatment before their professional colleagues, a requirement as essential in the interest of the public as it is consonant with the disinterested practice of scientific therapeutics.'

"Mr. J. Smith, late superintendent of the Dalrymple Home, seconded the motion, which was carried unanimously.

"Surgeon-Major Pringle moved, and Mr. Jabez Hogg seconded: 'That this meeting, having been informed by a competent London analyst, who has made a special analysis, that the alleged "bichloride of gold cure" shows no trace of gold or of chlorides, and contains 27.55 per cent of alcohol, condemns unreservedly the prescription of such an intoxicating preparation to an inebriate.'

"This, too, was carried unanimously."

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Mortality reports from 98 cities, towns, villages, and sanitary districts, having an aggregate population of 783,003, show 1091 deaths from all causes during July. This corresponds to a death-rate of 1.39 per 1000, or 16.69 per annum.

There were 129 deaths due to consumption, 47 to pneumonia, 26 to bronchitis, 13 to congestion of the lungs, 24 to diarrhoea and dysentery, 53 to cholera infantum, 46 to other diseases of the stomach and bowels, 25 to diphtheria and croup, 9 to scarlatina, 1 to measles, 16 to whooping-cough, 28 to typhoid-fever, 7 to malarial fevers, 6 to cerebro-spinal-fever, 1 to erysipelas, 31 to cancer, 79 to diseases of the heart, 6 to alcoholism, and 544 to other causes.

San Francisco, 330,000 : J. W. Keeney, M.D., Health Officer. The total number of deaths during the month of July was 580—192 under five years of age, and 46 among the Chinese. The annual death-rate per 1000 was 21.36. There were 88 deaths from zymotic diseases, and 60 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven.

The mortality report for July has been received from 165 towns in the State.

There were 1487 deaths reported during the month. This was 595 more than in June; it was 188 more than in July, 1891, and 134 more than the average number of deaths in July for the five years preceding the present.

There were 632 deaths under five years of age. The death-rate was 24.6 for the large towns ; for the small towns, 19.1, and 22.9 for the whole State. The deaths from zymotic diseases were 575, being 38.6 per cent of the total mortality against 20 per cent in June. The deaths from consumption numbered 114.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer. In the four weeks ending August 27th, 1892, there were 507 deaths, of which number 220 were colored, and 206 were under five years of age.

The annual death-rate was 26.05 per 1000.

From zymotic diseases there were 150 deaths, and from consumption, 48.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Florida Health Notes is the title of the official bulletin of the State Board, the first issue of which is under date of July. From it we quote the following summary for the month of July : Reports received from 23 counties and 2 cities representing 250,364 aggregate population. Births, 305 ; marriages, 173 ; deaths, 287 ; deaths under five years of age, 136. Annual death-rate per 1000, 13.75.

Cholera infantum caused 25 deaths ; malarial fevers, 23 ; diarrhœa, 22, and consumption, 15.

Pensacola, 15,000 : R. W. Hargis, M.D., President.

The mortality during the month of August was 40, of which 22 were of the colored population, and 14 were under five years of age.

Annual death-rate per 1000 was 32.0.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,400,000 : J. D. Ware, M.D., Commissioner of Health, reports for the month of July 2832 deaths, of which number 1470 were under five years of age.

Annual death-rate per 1000 was 24.13.

From zymotic diseases there were 956 deaths, of which number 211 were from typhoid-fever and 578 were from diar-

rhoeal diseases ; there were 192 deaths from consumption and 147 from acute lung diseases.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines.

Burlington, 30,166 : Total deaths in July, 25. Annual death-rate per 1000, 9.48.

Cedar Rapids, 24,000 : No report.

Council Bluffs, 35,000 : Total deaths in July, 20. Annual death-rate per 1000, 6.84.

Des Moines, 62,000 : Total deaths in July, 36. Annual death-rate per 1000, 6.36.

Dubuque, 35,000 : Total deaths in July 40. Annual death-rate per 1000, 12.24.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored : Deaths in two weeks ending August 13th, 1892, 285, representing an annual death-rate of 29.27 per 1000. Of the total mortality, 89 were colored, and 93 were under the age of five years. 61 deaths were from zymotic causes, and 43 were from consumption.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary. For the month of August the total deaths were 945, an increase of 88 compared with the corresponding month of August, 1891. Of these 763 were whites and 182 colored—a death-rate of 23.32 per 1000 for the former and 30.76 per 1000 for the latter. The death-rate per 1000 for the whole population was 24.92.

11 died from infectious diseases, 80 from consumption, 23 from pneumonia, 161 from cholera infantum, 28 from enterocolitis, 23 from dysentery, 21 from diarrhœa, and 17 from sun-stroke. 510, or 53.96 per cent of the total deaths, were in children under five years of age.

During the month 137 cases of infectious diseases were reported, a decrease of 134 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 1111 deaths reported in July, of which number 560 were under five years of age. The annual death-rate per 1000 was 28.38. There were 372 deaths from zymotic diseases, and 137 from consumption.

MICHIGAN, Henry B. Baker, M.D., Secretary, Lansing.

For the month of August, 1892, compared with the preceding month, the reports indicate that typhoid-fever, dysentery, cholera infantum, whooping-cough, typhoid-malarial-fever, cerebro-spinal meningitis, cholera morbus, and diarrhœa increased, and that inflammation of brain, measles, erysipelas, and puerperal-fever decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was north (instead of southwest), the velocity was slightly greater, the temperature was lower, the rainfall at Lansing was 0.18 of an inch more, the absolute humidity was less, the relative humidity was more, the day and the night ozone were considerably more, and the height of ground above the water in the well at Lansing was the same.

Compared with the average for the month of August in the six years 1886-91, membranous croup was more prevalent, and small-pox, measles, erysipelas, inflammation of brain, typho-malarial-fever, dysentery, intermittent-fever, cholera infantum, cholera morbus, diphtheria, cerebro-spinal meningitis, and puerperal-fever were less prevalent in August, 1892.

For the month of August, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was north (instead of westerly), the velocity was less, the temperature was higher, the rainfall

was .43 of an inch more, the absolute and the relative humidity were more, the day and the night ozone were more, and the height of ground above the water in the well at Lansing was one inch less.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of August, 1892, at forty-eight places; scarlet-fever, sixty-six; typhoid-fever, eighty-six, and measles at eleven places.

Reports from all sources show diphtheria reported at four places more; scarlet-fever at two places more; typhoid-fever at forty-eight places more, and measles at eight places less in the month of August, 1892, than in the preceding month.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

The mortality for the month of June was 702 from all causes, in a total population of 1,301,826.

There were from tuberculosis, 83 deaths; from diphtheria and croup, 20; from pneumonia, 44; from bronchitis, 22; from enteric-fever, 9; from scarlatina, 21; from whooping-cough, 10; from measles, 7; from diarrhœal diseases of children, 16; and from influenza, 3. The annual death-rate per 1000 was 7.11.

St. Paul, 150,000: H. F. Hoyt, M.D., Commissioner of Health.

There were 146 deaths during the month of July, of which number 89 were under five years of age. Annual death-rate per 1000, 11.68. Zymotic diseases caused 50 deaths, and consumption 8.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716: E. R. Lewis, M.D., Sanitary Superintendent.

There were 117 deaths during the month of June, of which number 36 were under five years of age. Annual death-rate per 1000, 10.5. Zymotic diseases caused 8 deaths, and consumption 16.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 292,574: W. W. Varick, President.

The deaths during July numbered 781, of which 460 were under five years of age. Annual death-rate per 1000, 38.0. From zymotic diseases there were 229 deaths, and from consumption, 51.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany.

The Secretary reports for July the number of deaths uniformly greater than in any other month of the year, the increase being due to the large fatality from diarrhœal diseases. The average daily death-rate has risen this month from 302 in June, the lowest of the year, to 437, the highest, exceeding that of January, when during the height of the grippe epidemic it was 434, and the highest of any month previously recorded, excepting that of April, 1891, when the earlier grippe epidemic raised it to 466 per diem. There were 2000 more deaths than in July, 1891, and nearly 3000 more than the average for July for seven years past. The deaths from diarrhœal diseases rose from 676 in June to 3629, a larger number than any previously reported for one month. There is an increase in the mortality from typhoid-fever and whooping-cough, but that from scarlet-fever and measles is materially diminished. There is little change in diphtheria. There is a marked increase in the mortality, as is customary in July, from diseases of the digestive and nervous systems. An unusually large number of deaths is reported from accidents and violence; several of these have been from lightning-stroke, but most are from drowning and railway accidents. About 52 per cent of the deaths reported occurred under five years of age. From consumption there were 1093 deaths, which is about the same as in June and in July, 1891. In the six largest cities, whose aggregate population is 3,374,500, there were 9351 deaths, or an annual death-rate of 32.62 per 1000. Nearly one third of these, or 2838 deaths, were from diarrhœal diseases. In the rest of the State, nearly 3,000,000 population reporting, there were 4075 deaths, giving a death-

rate of 16.50, and 755 deaths from diarrhœal diseases, or about one sixth of the total mortality. Of 1670 deaths in the rural districts, but 160 were from diarrhœal diseases.

New York, 1,801,739 : Total deaths, 5544—3168 under five years. Death-rate, 36.12. Zymotic diseases per 1000 deaths from all causes, 378.25. Deaths from consumption, 407.

Brooklyn, 957,163 : Total deaths, 2621—1631 under five years. Death-rate, 32.25. Zymotic diseases per 1000 deaths from all causes, 407.86. Deaths from consumption, 151.

Albany, 97,120 : Total deaths, 265—143 under five years. Death-rate, 32.60. Zymotic diseases per 1000 deaths from all causes, 347.20. From consumption, 19.

Syracuse, 91,944 : Total deaths, 158—74 under five years. Death-rate, 20.62. Zymotic diseases per 1000 deaths from all causes, 297.46. From consumption, 15.

Buffalo, 278,796 : Total deaths, 502—285 under five years. Death-rate, 21.78. Zymotic diseases per 1000 deaths from all causes, 321.85. From consumption, 35.

Rochester, 144,834 : Total deaths, 256—127 under five years. Death-rate, 21.20. Zymotic diseases per 1000 deaths from all causes, 329.60. From consumption, 27.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

On September 7th, 1892, Dr. George Gillet Thomas, Wilmington, was elected as a member of the Board to fill the unexpired term of Dr. Thomas F. Wood, deceased.

Dr. Richard H. Lewis, Raleigh, was elected Secretary of the Board, and to him all communications should be addressed after October 1st, 1892.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Sixty-four cities and towns reported 2136 deaths in an aggregate population of 1,276,621 during the month of July. Of this number 886 were under five years of age. The annual death-rate per 1000 was 20.08—the greatest ratio of mortality being reported from Chicago, 1299 inhabitants, death-rate, 53.85 per 1000, and the smallest from Lima, 15,981 inhab-

itants, death-rate, 4.50 per 1000. Thirteen places reported no deaths in July.

The mortality from zymotic diseases amounted to 668, and from consumption, 192.

Cincinnati, 300,000 : J. W. Prendergast, M.D., Health Officer. The Twenty-fifth Annual Report, 1891, states that there were 6635 deaths during the year—a ratio of 22.11 in every 1000 of population. This is an increase of 194 over the mortality in the preceding year. There were 2218 deaths under five years of age. Zymotic diseases numbered 1460 deaths, and consumption, 643.

Toledo, 90,000 : A. W. Fisher, Health Officer.

There were 144 deaths during July, of which number 74 were under five years of age. The annual death-rate was 19.20 per 1000.

Zymotic diseases caused 50 deaths, and consumption, 13.

Columbus, 101,945 : Lee McBriar, M.D., Health Officer.

The number of deaths in June was 92, of which number 21 were under five years of age. The annual death-rate per 1000 was 10.92. Zymotic diseases caused 16 deaths, and consumption, 16.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer.

In the three weeks ending August 27th, 1892, there were 1389 deaths, of which number 825 were under five years of age. Annual death-rate, 21.24 per 1000. Deaths from consumption numbered 132, and from zymotic diseases, 348.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar. During the four weeks ending August 27th, 1892, there were 439 deaths, of which 240 were under five years of age. Annual death-rate, 22.38 per 1000. Zymotic diseases caused 169 deaths, and consumption, 32.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence.

Registration Report for 1891 shows that there were 6620

deaths reported during the year, representing a death-rate of 18.6 in every 1000 of population. There were 84 deaths from diarrhœa, 59 from dysentery, 546 from cholera infantum, 149 from typhoid-fever, 177 from epidemic influenza, 12 from measles, 77 from whooping-cough, 33 from scarlatina, 568 from pneumonia, 710 from consumption, 247 from bronchitis, and 480 from diseases of the heart.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville.

The principal diseases, named in the order of their greater prevalence, in the State for the month of July were : Typhoid-fever, malarial-fever, dysentery, diarrhœa, whooping-cough, consumption, cholera infantum, pneumonia, scarlet-fever, and tonsilitis. Typhoid-fever was reported in the counties of Anderson, Blount, Bradley, Davidson, Decatur, Fentress, Giles, Grundy, Hamilton, Houston, Humphreys, Knox, Lauderdale, McMinn, Montgomery, Moore, Robertson, Rutherford, Shelby, Sullivan, Weakley, and Williamson ; whooping-cough in Davidson, Giles, Humphreys, Maury, McNairy, Stewart, and Williamson ; consumption in Davidson, Hamilton, Knox, Maury, Montgomery, Rutherford, and Shelby ; scarlet-fever in Bradley, Dyer, Madison, and Shelby ; mumps in Anderson and McNairy ; cerebro-spinal meningitis in Rutherford.

Chattanooga, 25,000 white and 15,000 colored : Total deaths in July, 47—28 of which were colored, and 25 under five years of age. Annual death-rates, 9.12 for the white population, and 22.39 for the colored, per 1000.

Knoxville, 31,273 white, and 9112 colored : Total deaths in July, 75—31 of which were colored, and 34 under five years of age. Annual death-rates, 16.87 white, and 40.82 colored, per 1000.

Memphis, 33,800 white, and 27,700 colored : Total deaths in July, 111—56 of which were colored, and 40 under five years of age. Annual death-rates, 19.52 white, and 24.25 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths in July, 175—100 of which were colored, and 66 under five years of age. Annual death-rates, 16.47 white, and 36.18 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of June, 1892, shows that there was a total mortality of 1796, of which number 751 were of children under five years of age. From infectious and contagious diseases there were 220 deaths ; from pneumonia, 307 ; from meningitis, 60 ; from gastro-enteritis, 27 ; still-births, 103.

MORTALITY STATISTICS ABROAD FOR THREE MONTHS ENDING
JULY 31ST, 1892.

Population, total number of deaths, annual death-rate per 1000, and deaths from small-pox :

London, 4,263,294 ; 20,045 ; 18.8 ; 24. Glasgow, 669,143 ; 4074 ; 24.4 ; 2. Liverpool, 513,790 ; 3039 ; 23.7 ; 4. Manchester, 510,998 ; 3140 ; 24.6. Birmingham, 483,526 ; 2562 ; 21.2. Leeds, 375,540 ; 1752 ; 18.7 ; 1. Dublin, 349,594 ; 2730 ; 31.2. Sheffield, 329,585 ; 1722 ; 20.9. Edinburgh, 264,787 ; 1175 ; 17.7. Belfast, 255,922 ; 1813 ; 28.3. Bristol, 223,592 ; 1143 ; 20.5. Bradford, 219,262 ; 992 ; 18.1. Nottingham, 215,395 ; 897 ; 16.7. Hull, 204,750 ; 853 ; 16.7. Salford, 201,058 ; 1133 ; 22.5. Newcastle, 192,205 ; 933 ; 19.4 ; 1. Portsmouth, 163,667 ; 594 ; 14.5. Norwich, 102,-

736; 442; 17.2. Amsterdam, 406,302; 2117; 20.8. Rotterdam, 203,486; 1383; 27.2. The Hague, 156,497; 784; 20.0. Paris, 2,424,705; 13,551; 22.3; 8. Lyons, 416,029; 2241; 21.5; 3. Marseilles, 406,919; 2773; 27.3; 16. Nantes, 127,482; 665; 20.9. Saint-Étienne, 117,875; 632; 21.4; 18. Havre, 116,369; 837; 28.7; 3. Rouen, 111,847; 841; 30.1; 1. Reims, 105,408; 612; 23.2; 15. Nice, 97,720; 488; 20.0; 2. Nancy, 87,110; 514; 23.6; 13. Amiens, 83,654; 434; 20.8. Limoges, 72,697; 451; 24.8; 48. Besançon, 54,636; 349; 25.6. Berlin, 1,662,237; 8052; 19.6. Hamburg, 637,686; 3966; 24.9; 1. Leipzig, 375,707; 1941; 20.7. Munich, 366,000; 2572; 28.1; 2. Breslau, 324,143; 2194; 27.1; 1. Cologne, 290,000; 1672; 23.0. Dresden, 286,200; 1476; 20.6. Magdeburg, 215,760; 1118; 20.7. Frankfort, 188,050; 1077; 22.9. Hanover, 171,148; 844; 19.7. Königsberg, 164,996; 977; 23.7. Düsseldorf, 153,968; 801; 20.8. Nuremberg, 151,362; 907; 24.0. Altona, 148,615; 948; 25.5. Chemnitz, 147,863; 1108; 30.0. Elberfeld, 131,181; 571; 17.4. Bremen, 127,993; 692; 21.6. Dantzig, 122,091; 689; 22.6. Stettin, 121,512; 753; 24.8. Barmen, 120,284; 503; 16.7. Crefeld, 110,170; 464; 16.8. Halle, 107,551; 586; 21.8. Aix-la-Chapelle, 105,923; 560; 21.1. Essen, 83,025; 472; 22.7. Mayence, 73,877; 404; 21.9. Metz, 62,122; 324; 20.9. Brussels, 486,254; 2345; 19.3. Vienna, 1,406,933; 9077; 25.8; 1. Buda-Pesth, 526,263; 4105; 31.2; 3. Prague, 317,614; 2110; 26.6; 102. Trieste, 157,343; 1076; 27.4. Lemberg, 130,333; 884; 27.1; 28. Gratz, 114,272; 722; 25.3. Brünn, 96,186; 710; 29.5; 2. Cracow, 76,116; 717; 37.7; 7. Presburg, 56,746; 433; 30.5. Pilsen, 51,860; 324; 25.0; 1. Linz, 48,565; 364; 30.0. Copenhagen, 326,000; 1761; 21.6. Stockholm, 248,051; 1221; 19.7. Gothenburg, 105,000; 520; 19.8. Christiania, 151,130; 669; 17.7. Helsingfors, 64,225; 296; 18.7. St. Petersburg, 954,400; 7760; 32.5; 26. Warsaw, 490,417; 2954; 24.1; 73. Odessa, 302,000; 2023; 26.8; 9. Rome, 436,179; 2069; 19.0; 1. Milan, 416,122; 2456; 23.6; 4. Turin, 328,777; 1605; 19.5. Genoa, 197,403; 1163; 23.6; 25. Venice, 161,130,779; 19.3. Bologna, 141,750; 785; 22.2. Bucharest, 206,000; 1515; 29.4. Jassy, 82,914; 594; 28.7; 28. Bombay, 821,764; 6762; 32.9; 212.

OBITUARY.

THOMAS FANNING WOOD, M.D., LL.D., Secretary and Treasurer of the North Carolina Board of Health, died at his residence in Wilmington, N. C., August 22d, 1892.


By Dr. Wood's death the votaries of preventive medicine in the State, and, indeed, throughout the country, have lost an accomplished co-worker, whose place will be hard to fill. He was among the foremost in securing such legislation as, in 1877, resulted in the enactment of a law making the State Medical Society the Board of Health. At the first meeting of the Medical Society following the enactment, a committee was appointed to perform the duties which the law imposed. Of that committee Dr. Wood was made secretary and treasurer, and so continued up to the time of his death.

At the time of the passage of the act creating the Board of Health, the amount of \$100 a year was appropriated for its use; and until the act of 1885 the State appropriation was insufficient to meet the expenses for stationery and postage incident to the necessary instruction of the people in the methods of sanitation, and in exciting the interest of the medical profession. Indeed, he had the work so much at heart that when the appropriation was exhausted he drew upon his own scant resources rather than that there should be any halt in its progress.

Great was his satisfaction when the Legislature of 1885 created the Board of Health as it now exists, enabling it to do better service. Only those who were in communication with him know the deep anxiety with which he awaited the action or the pleasure that it gave him. He at once engaged the services of an assistant and proceeded to have county boards of health organized, and to establish a voluntary system of mortuary reports from the larger towns of the State. He worked assiduously, and even when for the treatment of his fatal malady it became necessary for him to keep his bed for *twenty months*, he continued his work, ever watchful for obstacles, and diligent in the direction of means to avoid or overcome them.

To know Dr. Wood was to love him; and those who knew him best loved him most: an esteemed citizen, a skilful physician, a zealous sanitarian, and a devout Christian.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publication for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

CHOLERA AND ITS CONTENTION AT THE PORT OF NEW YORK.

THE significance of Supervising Surgeon-General Wyman's communication to the Secretary of the Treasury on the approach of cholera, published in our August number, reminding the Secretary that it was "incumbent upon the Treasury Department to be forehanded in the use of such means as it possesses for the exclusion of the disease from this country," was, on the actual appearance of cholera at the port, promptly followed by the thing signified—an effort of the Surgeon-General of the U. S. Marine Hospital Service to supersede the quarantine service of the State of New York. The incubation period of cholera infection is well known to be from a few hours to three days; and five days' detention for well persons is commonly recognized by sanitarians as a sufficiently long period for the protection of the public health. "If, during these five days," says Dr. Shakespeare, in the *Medical News* of September 17th, "no sign of even a slight or 'walking attack' has made its appearance, and, finally, if a culture test of the fæces has indicated the absence of the comma-bacilli of Koch, the individual temporarily restrained of his liberty, both for his own benefit and for that of the public, may without danger be again restored to the full enjoyment thereof."

At the International Sanitary Conference, held in Rome, in 1885, composed of delegates of the highest distinction in sanitary science, from Italy, Germany, Belgium, Spain, France, Russia, Sweden, Norway, England, Switzerland, Denmark, Turkey, Greece, Austria, India, Japan, Mexico, Brazil, and several other South American States, and the United States, one of the most important acts was the declaration that

"Land quarantines and sanitary cordons are useless."

Notwithstanding, with a purpose too clear to be mistaken, and a spur to emphasize it—in default of any law to justify the assumption—at the instigation of the Surgeon-General of the Marine Hospital Service, the President's signature was secured to the most disgraceful edict against practical sanita-

tion that has emanated from any official entrusted with the duty of protecting the public health during the last thirty years. It is here published, under its proper title, as a mournful record of an effort to gratify ambition regardless of practical results :

OBSTRUCTED SANITATION.

Quarantine restrictions upon immigration to aid in the prevention of the introduction of cholera into the United States.

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL,
UNITED STATES MARINE HOSPITAL SERVICE, }
WASHINGTON, September 1, 1892.

TO COLLECTORS OF CUSTOMS, MEDICAL OFFICERS OF THE MARINE HOSPITAL SERVICE, FOREIGN STEAMSHIP COMPANIES AND STATE AND LOCAL BOARDS OF HEALTH :

It having been officially declared that cholera is prevailing in various portions of Russia, Germany and France and at certain ports in Great Britain, as well as in Asia, and it having been made to appear that immigrants in large numbers are coming into the United States from the infected districts aforesaid, and that they and their personal effects are liable to introduce cholera into the United States, and that vessels conveying them are thereby a direct menace to the public health ; and it having been further shown that under the laws of the several States quarantine detentions may be imposed upon these vessels a sufficient length of time to insure against the introduction of contagious diseases, it is hereby ordered that no vessel from any foreign port, carrying immigrants, shall be admitted to enter at any port of the United States until said vessel shall have undergone a quarantine detention of twenty days (unless such detention is forbidden by the laws of the State or the regulations made thereinunder), and of such greater number of days as may be fixed in each special case by the State authorities.

This circular to take immediate effect except in cases of vessels afloat at this date, which will be made the subject of special consideration upon due application to the department.

WALTER WYMAN, Supervising Surgeon-General United States Marine Hospital Service.

CHARLES FOSTER, Secretary of the Treasury.

Approved.

BENJAMIN HARRISON.

The last signature makes the proclamation the President's, but the first signifies its source. Had its authority been limited to a prohibition of emigration for even a longer period it would doubtless have met with the approbation of sanitarians generally, both at home and abroad. But that would not have accomplished its purpose, confirmed by the almost simultaneous appearance of and interpretation of the act by ex-Supervising Surgeon-General Hamilton, who evidently expected to take charge. As reported in the newspapers of the day :

“ Dr. Hamilton, who accompanied Secretary Foster, is the author of all quarantine laws passed since 1877. He is brought here as an expert on quarantine regulations, and will meet the Committee of the National Board of Health” (meaning the Committee of the American Public Health Association, there being no National Board of Health) “ which has arrived, after inspecting the quarantine facilities along the Canadian frontier. The committee will make a full inspection at this port.

“ Dr. Hamilton, to show that the federal authorities had full power to absolutely control the intercourse and travel between this and other countries and this and other States, quoted to me last night the act of Congress passed in 1890 following the Florida yellow-fever epidemic. It reads as follows :

“ Whenever it shall be made apparent to the satisfaction of the President that cholera, yellow-fever, small-pox, or any other plague exists in any State or Territory, or in the District of Columbia, and that there is danger of the spread of the disease into other States or Territories, he is hereby authorized to cause the Secretary of the Treasury to promulgate such rules and regulations as may be necessary to prevent the spread of the disease.

“ ‘ That,’ said Dr. Hamilton, after he read the law, ‘ should set at rest all question as to the authority of the President.’

“ Dr. Hamilton said that he believed the cholera would be kept out of this city, and said that in 1887, when the ships *Alesia* and *Britannia* brought the cholera here from Mediterranean ports and there were more than a score of deaths at Quarantine, the situation was more serious than now.”

At this time Dr. Jenkins, the Health Officer of the port, had his forces well in hand, with regulations adapted to a knowledge of the disease and the safety of the public, so cogently stated by the highest authorities above quoted. The establishment was known to be well equipped, and, though not perfectly, with ample power to contend with extraordi-

nary emergencies, for, besides the general detail of means adapted to ordinary conditions, a particular section of the quarantine law makes it "the duty of the Health Officer, in the presence of immediate danger, to take the responsibility of applying such additional measures as may be deemed indispensable for the protection of the public health," thus conferring upon him powers proportional with unusual conditions. Under the regulation he had adopted of five days' detention, he was abundantly able to handle two or three thousand without embarrassment, while he well knew, if the premises became too crowded, he could quickly resort to the use of ships, as his predecessors have done heretofore with the most satisfactory results. With his knowledge of the State laws, by which he was governed, it is no wonder that his first impulse was, on reading the Surgeon-General's proclamation, though signed by the President, to wholly disregard it. And he was quickly fortified in this impulse by the opinion of the Attorney-General of the State, supported by the following citations showing the limitations of Dr. Hamilton's laws :

"The Surgeon-General of the Marine Hospital Service, under the direction of the Secretary or the Treasury, is charged by the act with the execution of the provisions of the act and of framing rules and regulations for that purpose, which rules are to be subject to approval by the President.

"The two important provisions of the same act should be considered in determining how far this act of Congress is applicable to the port of the city of New York. The rules and regulations to be prescribed are by the act itself limited by the provisions.

"First—'But such rules and regulations shall not conflict with or impair any sanitary or quarantine laws or regulations of any State or municipal authorities now existing or which may hereafter be enacted ;' and

"Second—'Provided that there shall be no interference in any manner with any quarantine laws or regulations as they now exist or may hereafter be adopted under State laws.'

"The act of Congress, as will be seen, therefore, recognizes the right of the States to enact quarantine laws and rules and regulations, and when such laws, rules and regulations shall have been enacted the act of Congress or any rules or regulations established thereunder, in conflict with or which in any manner impair or interfere with such quarantine laws or regulations as exist in the States, must give way to the laws and regulations adopted by the various States.

"The act of Congress, therefore, in view of the fact that the State of New York has adopted laws and regulations with reference to quarantine, does not give to the Supervising Surgeon-General of the United States authority to make any rule or proclamation that conflicts with or impairs any law of the State of New York or any rule or regulation of the Quarantine Commissioners or Health Officer of this State."

On this exposition, Governor Flower assumed the authority of the State. The clash of the public authorities of the United States and of the State of New York seemed imminent. The prohibition of the landing of well people who had undergone sufficient detention for their own safety and for the protection of the public health, had the effect of temporarily arresting the health service of the port, and greatly alarming the public. The newspapers echoed the alarm by the most exaggerated accounts in their editorials, while they gave the least possible significance to the efforts at correction by competent observers.

But with eminent wisdom and skill, Governor Flower and those under his authority proceeded with as little delay as possible to relieve the people from the danger inflicted by the proclamation—the detention of thousands of people on board infected ships! Yet there is ground for hope, at the time of this writing (September 19th), that the defeat of cholera at the port may be no less signal than the defeat of the "cordon" system, ship and shore, and an everlasting defeat to all who endeavor to perpetuate it.

YELLOW-FEVER, even more than cholera, is the constant subject of attention by port health officers. Like cholera, however, its digestion—in so far as the term in this connection may be allowable to signify healthful disposal—has waited altogether too long upon the appetite for germs before adopting sufficiently demonstrated means for its prevention.

The most searching study of yellow-fever hitherto published is by Dr. Sternberg, 1890, recently issued by the United States Marine Hospital Service.* It comprehends a thorough

* Report on the Etiology and Prevention of Yellow-Fever, by George M. Sternberg, Lieutenant-Colonel and Surgeon U. S. Army. Published by order of the Secretary of the Treasury. Washington: Government Printing Office, 1890.

investigation of the alleged discoveries of Freire, Carmona y Valle, Paul Gibier, and Frank Billings, with such demonstrations as can scarcely fail to satisfy any intelligent reader of their fallacy. Dr. Sternberg very clearly shows that none of the micro-organisms hitherto described in relation with yellow-fever are either constant or pathogenic.

“There is no evidence that yellow-fever is propagated by contamination of the supply of drinking water, as frequently, and probably usually, occurs in the case of typhoid-fever and cholera. Moreover, epidemics extend in a more deliberate manner, and are restricted within a more definite area than is the case with cholera and typhoid-fever. It is usually ten days or two weeks after the arrival of an infected vessel or of a person sick with the disease before cases of local origin occur in the immediate vicinity of the imported case or infected vessel. When the disease has effected a lodgment the area of infection extends slowly, and usually has well-defined boundaries. In towns and cities having a common water-supply, one portion remains perfectly healthful, while another and usually the most filthy portion may be decimated by the scourge.

“The experimental evidence recorded and the facts just stated seem to justify the recommendation that the dejecta of yellow-fever patients should be regarded as infectious material, and that such material should never be thrown into privy vaults or upon the soil until it has been completely disinfected.

“This rule thoroughly enforced, together with an efficient quarantine service and proper attention to the sanitary police of our exposed seaport cities, would, I believe, effectually prevent this pestilential disease from again obtaining a foothold within the limits of the United States.”

An *efficient* quarantine service is understood to imply efficient practical sanitation without delay.

THE MEDICAL AND DENTAL REGISTER DIRECTORY AND INTELLIGENCER, of Pennsylvania, New Jersey, and Delaware, for 1892, a volume of 424 pages, contains a complete list of the national and State medical and dental associations, with their officers and date of meetings; medical and dental col-

leges of the United States, and other very valuable material ; medical and dental laws, hospitals, homes, etc., also the lists of medical and dental practitioners, with their school and year of graduation, post-office addresses, and office hours. The work bears the impress of being thoroughly reliable in all its departments. It is well printed on good paper, nicely bound, and its appearance carries with it evidence that it is of that class of publications which immediately take popular hold in the special field for which they are designed. Price, \$1.25. George Keil, publisher, 306 Chestnut Street, Philadelphia.

CONTRIBUTIONS OF PHYSICIANS TO ENGLISH AND AMERICAN LITERATURE, by Robert C. Kenner, A.M., M.D., is a choice selection of 92 pages from the writings of some of the most distinguished physicians on subjects of universal interest, and particularly suited to the Physicians' Leisure Library series, to which it is a contribution ; published by George S. Davis, Detroit, at 25 cents a copy.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

TWENTIETH ANNUAL MEETING TO BE HELD AT THE CITY OF MEXICO, NOVEMBER 29TH, 30TH, AND DECEMBER 1ST AND 2D, 1892.

WE regret that, notwithstanding several days' waiting for it, the Secretary of the Association has not been able to complete the full detail of routes and rates of travel, hotel accommodations, etc., in time for this number, as promised in September. We meet the issue as far as practicable, however, in this number, and invite particular attention to the IRON MOUNTAIN ROUTE, from St. Louis to Mexico, as advertised on another page, at the reduced rate of a round-trip ticket for one fare, with equally generous reductions for variations of route on return trip. Moreover, we have in expectation, in time for announcement in our next issue, November 1st, like liberal rates hence to St. Louis and return.

The scenery by the Iron Mountain Route and its connections is alike remarkable for its beauty and sanitary attractions. Notably Hot Springs, a world-renowned resort, can

scarcely be passed by by any sanitarian who has not before availed himself of an opportunity to make himself personally acquainted with the advantages of this resort.

The baths, the especially attractive feature to invalids, are provided by about twenty bath-houses to be found at the springs. Most of these are in Bath-house Row, which extends south from the Arlington Hotel. These, for the most part, are very complete and elegant in appointment, some of them costing as high as \$30,000. The bath-tubs are generally porcelain lined, and are provided with both hot and cold water. The bath is usually taken at a temperature of between 95 and 100°, unless the patient is physically unable to stand so great a temperature.

El Paso is another of the famous places on the route, which sanitarians cannot afford to pass by without at least one day's observation, while it may be made the base for many pleasant excursions to Paso del Norte and many other points in Old and New Mexico, which members of the Association are not likely to be slow to avail themselves on this opportunity.

But besides the attractions by the way, the splendid reception which will be accorded those attending the meeting may be foreshadowed by information already received from the local committee. The city government will entertain the Association one evening; a local society another evening; one day following the meeting an excursion will be made to observe the great work, now nearly completed, for the drainage of the Valley of Mexico; and another day will be devoted to an excursion for sight-seeing in and about the City of Mexico.

Porfirio Diaz, the eminent President of the Republic of Mexico, will give a reception to the Association at the famous castle of Chapultepec.

A committee of American ladies, resident in the City of Mexico, has been organized for the purpose of entertaining all the ladies who may attend from the United States and Canada.

CONCORD, N. H., September 27, 1892.

Postscript.

DEAR DOCTOR: The details of transportation, etc., have not as yet been fully arranged, but will be perfected in a few

days, and a circular giving full information will be issued at least a month prior to the date of the meeting. Already the following is assured :

A one-fare rate for the round trip from the railroads embraced in the Southern Passenger Association and in the Western Passenger Association. Like rates are expected from other sections of the country. Tickets will be sold from November 20th to November 26th inclusive, returning not later than December 31st, with a transit limit of fifteen days each way, thus giving ample opportunity to stop off at interesting points. Arrangements for special trains will probably be made.

Under this rate the cost of a round-trip ticket will be substantially as follows, from the points mentioned below :

Boston, \$85 ; Chicago, \$69.60 ; Council Bluffs, \$64.80 ; Kansas City, \$60.10 ; Milwaukee, \$72.15 ; Omaha, \$64.90 ; St. Louis, \$63.60 ; St. Paul, \$74.30 ; Minneapolis, \$74.30. The above rates are *via* the Mexican Central Railway. The following rates have been given *via* the Mexican National Railway : New York, \$85.20 ; Chicago, \$70.40 ; St. Louis, \$63.60 ; Kansas City, \$60.10 ; New Orleans, \$52.70 ; San Antonio, \$35.85. Equally low rates will probably be secured from all sections of the country, the Pacific slope included. The hotel rates in the City of Mexico will average considerably less than in the United States. The Iturbide and San Carlos, the leading hotels, will discount 25 per cent from their ordinary prices. The Hotel Humboldt and the Hotel del Jardin also offer discounts from regular prices. The sessions of the Association will be held in the hall of the Chamber of Deputies, and in case the Association is divided into sections, the Medical College and, if necessary, one of the theatres will be used.

Papers intended for this meeting must be forwarded to the Secretary *at once*, else they will be too late for translation into Spanish. All papers, applications for membership, etc., should be forwarded to the Secretary,

IRVING A. WATSON, *Secretary*,
CONCORD, N. H.

THE SANITARIAN.

NOVEMBER, 1892.

NUMBER 276.

NATIONAL HEALTH LEGISLATION AND QUARANTINE.*

By H. P. WALCOTT, M.D., Chairman of the Massachusetts State Board of Health.

THE little I intend to say upon this matter touches only a narrow portion of it, and that is the subject of quarantine, or that protection which our National or State authority is able to offer to a community in warding off the introduction of cholera; and in regard to the word quarantine, I desire to say in the beginning that my conception of it has but little reference to time. I think we have got fairly beyond absurdity. I think the wretched experience in New York should have weaned any scientifically-minded community from a question of quarantine that means simply a certain number of days of mere detention, criminal detention where it holds the well in contact with the sick.

I understand by quarantine a method of sanitary detention—that is, careful inspection of a ship that may be infected, the separation at once of the well from the sick, the immediate release of all if there has been no disease—the voyage across the Atlantic under ordinary conditions certainly is a quarantine as regards time where there has been no appearance of disease upon the voyage. Infected clothing or baggage to be disinfected at the port of entry and notice of the approach of persons, possibly infected, to be sent to the various points of destination.

With regard to the attempts of the United States Government to enforce a quarantine of any sort, that legislation began in the year 1799. The Congress of that date passed a statute,

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requiring United States officers to aid and assist local authorities in carrying out quarantine measures. The United States then carefully avoided the question of assuming the exercise of any right to maintain a quarantine of their own. That was the position of the Government down to the year 1878.

It then took more advanced position, and claimed the right to exercise more general powers. In the midst of the confusion of that legislation the National Board of Health came into existence, and the powers created by the act of 1878 were bestowed upon the National Board of Health. They were exercised by that Board for a limited period, by reason of the limitations in the statute, and expired in 1882. Since then the authority of the United States has been exercised, I presume, in accordance with the legislation of 1799—that is, in aid of local authorities.

Now it would perhaps be well to inquire what the experience as to quarantine has been upon the other side of the water. The country that first suggests itself to us is England, the foremost country in the world in sanitary matters. During the life of the General Board of Health that passed out of existence somewhere in the late fifties, the quarantine question was mooted, and that Board recommended the final giving up of any quarantine system whatever that meant the detention of a ship not proved to be an infected ship. It was sanitary detention. The sick were to be separated from the well. Notice was to be sent to various localities to which individuals under suspicion might go, and that was the end of it; and under that system Great Britain has stood nearer to every cholera epidemic than any other country of the world for forty years, and has to show now an almost complete exemption from it. There is no panic, no excitement. Perhaps it would be interesting to note that the sanitary powers then conferred upon the General Board of Health are now vested in the Local Government Board, the head of which—in fact, it is a board that has nothing but a chairman, who exercises all the power—is a member of the Cabinet, and changes office whenever there is a change of ministry. Until lately Sir George Buchanan has been medical officer of health, and has been the chief sanitary authority in this question of quarantine or sanitary detention in Great Britain.

In France the power of sanitary regulation rests in the hand of a responsible minister, who can call to his aid one of the most considerable sanitary authorities in the world—the Comité Consultatif d'Hygiène—consisting of somewhat more than thirty of the most eminent sanitarians of the country. The advice of such a body necessarily carries a weight, far beyond that of the minister himself.

The German method places this power in the hands of a minister, who is at the same time the Minister of Education and Religion ; as he has all the resources of the Gesundheitsamt at his disposal, such orders as he issues, for the present at any rate, have probably the best bacteriological knowledge of the day to rest upon.

In this country we have at present a National Board of Health, which exists simply upon the statute-book. The act creating the National Board of Health has never been repealed. Its appropriations ceased eight or nine years ago, and it of course has practically passed out of existence. It still has a secretary, who occasionally makes a report to the effect that the Board has no appropriations and has done no work. Another officer, however, owing to the enormous power of the Treasury Department, probably has become invested with about all the sanitary powers the Government sees fit to exercise, and that is the Supervising Surgeon-General of the Marine Hospital Service of the Department of the Treasury. It was an office devised for the care of the sick sailors, and probably would never have aimed at anything more than that, had it not happened to be an office of the Treasury Department. The first quarrel that the old Board of Health had with any other department was with the Treasury Department, which asserted its right to control all expenditures of money, and probably that protest of the Treasury Department backed up by the persistent self-seeking of the Surgeon-General of the Hospital Service, had more than anything else to do with the destruction of the most respectable sanitary authority the country ever had. The defects in the organization of that body I think were self-evident. It was appointed by the President. It was entirely independent (or meant to be independent), containing, in addition to the gentlemen appointed by the President—all of them eminent, recog-

nized all over the country as foremost in sanitary matters—an officer of the Army, an officer of the Navy and an officer of the Marine Hospital Service. I think it is fair to say that those three officers were never agreed. I presume that very few men now would find it desirable to recommend a restoration of it in its present shape. The question, it seems to me, with regard to the whole quarantine matter comes down to this: the United States has recognized the original right in the States and municipalities to control this matter, a sufficient control in the days when nothing further was done than to detain a vessel fifteen or twenty days in some harbor without regard to the separation of the sick from the well and without attempting to disinfect articles that might be infected.

Now we have come to a condition of things in which, in New York harbor, the lavish expenditure of money has proved absolutely insufficient to deal with the passengers of one steamer, so insufficient that every paper in every civilized portion of the world has a right to laugh at America and deride America for its stupid panic, a panic which the mismanagement in New York harbor seems largely responsible for.

What can we do to relieve this condition of things? It seems to me, in the first place, that you have got to have an administrative authority in which the people of this country will have confidence. I think it is possible for the government to furnish such authority. Both the Navy and the Marine Hospital Service are probably sufficiently well organized to undertake such functions. Moreover, the people must be satisfied that the regulations to be enforced are reasonable; and I doubt very much whether we have an authority at present that would satisfy the people of the United States. I am very certain that the assertion of any one man who holds a position in Washington would not be sufficient. It was such authority that the National Board of Health did and could give. To replace it, we have three propositions before us. One has been adopted by the American Medical Association, that you have a Minister of Health, a Cabinet officer, a man who shall go out of office whenever his party goes out of office, subject to all the vicissitudes of political life. It seems to me nothing would be gained from a position

in the Cabinet where medical knowledge must be subordinate to political position. I think some of us may be inclined to think that the present Secretary of Agriculture has been as much a politician as an agriculturist. If you are not to have that, in what way are you to bring the authority of the United States to the assistance of the local government? It seems to me that the French example offers one way of getting at it—by a representative body, a body that shall represent all the powers of the States combined in one national body, which shall meet as often as is necessary in Washington, as often as the Secretary of the Treasury (if he is to be the man entrusted with regulations of our administrative body) or as often as the President sees fit to call them together. A large body of that sort might act as our National Board of Health did through an Executive Committee under ordinary conditions. Again, you have another proposition which the American Public Health Association has recommended once or twice, and that is the establishment of a bureau in some one of the existing departments. Such a bureau now exists in the matter of education. The head of this bureau ought not to be subject to the vicissitudes of political life. Any gentleman who has been in Washington will realize that a man who holds his place in Washington subject to every change in administration cannot really be a scientific man, whatever else he may be. These three schemes, it seems to me, are now the only way in which you can dispose of a great many of the difficulties that surround this question. It is unfair that the city of Boston should be called upon to sustain all the expense of sanitary detention of emigrants every one of whom may be transported the next day to some distant point; and it seems to me that we shall always have the interior States complaining as they do now about the administration of the quarantine service at the seaport towns. You have already the great railroad systems quarantining against New York. At the present time the medical men are asked to perform services which the politicians are unwilling to undertake. The last Congress had before it a measure for the restriction of emigration. They did not dare to deal with it. They now ask the quarantine authorities to undertake the work for them and exclude emigrants. I think we shall all agree that this is a

question in national economics, not a question in medicine until it has been shown that these emigrants are diseased.

It is a source of much comfort to us all that the quarantine and sanitary protection of this port are in the hands of a wise, vigilant, and energetic sanitary authority.—*Boston Medical and Surgical Journal*, September 29th, 1892.

OUR PINE FORESTS AS FACTORS OF HEALTH.*

By S. S. SATCHWELL, A.M., M.D.

THE eastern counties of our State present an inviting field of medical research and investigation. Comprising a vast extent of territory, a variety of climate and atmosphere, many species of the vegetable and mineral kingdom, they are covered by fertile fields, rich swamps, extensive plains, and large forests of pine-trees. This vast extent of territory contains one and at the same time the elements which produce pain, disease, and death, and the remedies by which they are relieved and subverted. That wonderful divine, Henry Ward Beecher, said that "among the roots and herbs to be found in nearly every graveyard there is a remedy, if only ascertained, which would have relieved over half the victims who were laid to rest in death's embrace beneath its green sod." Without commenting on this striking proposition, there are reasons for the opinion that our grand and productive State, in her eastern and western boundaries, contains elements which are susceptible of being made remedies for nearly all the diseases to which our people are liable. As we cast our eyes over our eastern boundaries there is much that is peculiar and of special interest to the medical observer. As the mysterious volume of nature is opened to us with the laws of health and life written upon its ample pages, we behold, on the one hand, great atmospheric changes between the east and west, the exhilarating properties of our ocean breezes, the moisture of our atmosphere, particularly near the coast, interfering with the functions of the skin and demanding the

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compensating action of the liver and lungs; and, on the other hand, are found, upon our plains, along our streams, and in our forests and fertile fields, in rich abundance, the finest specimens of beautiful flowers, medicinal roots and herbs, that adorn the vegetable kingdom, constantly adding to the wealth of the *materia medica* and to the usefulness of medical science.

Eastern North Carolina can be complimented and congratulated not alone upon her great natural advantages and magnificent resources of minerals, water-power, wealth of climate, lands, forests and adaptation to commerce, manufactures, horticulture and agriculture, but in the way of sanitation, drinking water, amount of disease, bills of mortality and the general health of our people, we are making great improvement, and may challenge comparison with any portion of our noble old State. Would that I could impress upon every North Carolinian the vast benefit that has accrued to the public health and the public wealth of a *procedure*, potent, talismanic, destructive to disease and efficient to remove causes of disease in all our malarious localities and destined to reduce still more, with the advancing years, the death-rate in all these eastern counties and cities. That procedure is thorough drainage. Large tracts of land, from time immemorial hot-beds of malaria and the home of disease and pestilence, have become, by this agency alone, the abodes of health, comfort, and happiness. Every year do we see effectual drainage routing this fell destroyer of our race from his old accustomed haunts and dislodging him from his strong entrenchments in the east, until it stands out as a beacon truth in the light of sanitary science that malarious diseases, in their numerous phases and changing aspects, are passing away as the years roll on.

But these diseases and their varying complications and grades are not destitute of interest still to the physician, as the changing seasons of wet or dry, cool or hot, and other atmospheric varieties, render different communities more or less sickly. Malaria still abounds in different places as the conditions are favorable to its production, now manifesting itself in one form and then in another—sometimes intercurrent with some other disease more or less marking its features, and then assuming the shape of another malady, not always

easy to diagnose and cure. It still prevails extensively, finding victims in every direction, and in every favoring locality visiting its effects upon our patients and ourselves. This invisible, *imponderable*, and yet positive agent of disease, is borne still, as in ages past, upon the wings of the morning breeze, the evening mists and the nightly vapors entangle it in their meshes, and the fragrant odors of spring are treacherous with its poison.

My main object, however, in this paper, is to present the merits and claims for health, in other respects, of a very large portion—more than one half, perhaps, of the east—in the beneficence of nature alone. I allude to the antiseptic, hygienic, and preventive properties of our eastern pine-tree, or the exemption of our pine forests from consumption, malaria, and germ diseases. For more than three decades I have been continuously engaged in laborious country practice in our eastern counties, comprising every variety of malarious locality, whether productive of the milder forms of intermittent and remittent-fevers or of the higher grades of malarial-fevers as seen in severe congestions and hemorrhagic malarial-fever. I have also practised extensively during all this time upon the pine ridges and in the pine forests of numerous of these eastern counties, especially east of the Wilmington and Weldon Railroad and between Virginia and South Carolina. I have to record as the result of a long and arduous practice, based upon my observation and experience, that, while malarial diseases and their complications with other diseases are peculiar and indigenous to malarious localities, sandy regions, abounding in pine forests, are exempt from malaria, from the production of consumption, diphtheria, puerperal-fever, and diseases of almost every class that are due to bacterial infection. I do not say that consumption and diseases of germ origin do not occur at all where pine forests abound, but my experience is that they are of very rare occurrence.

Look at the tall pine-tree of our eastern plains and sandy soil with its absorbent powers. Its tall, columnar trunk offers less mechanical obstacle to the passage of air, and a smooth surface for the concentration of dews and vapors than any other tree of the woods. But it seems gifted with singular

salubrious powers, and imbued with healing virtues and anti-septic properties in every bough. Every tree of the forest circulates, secretes and eliminates, so long as alive, its specific and peculiar effluvia. The pine has its azone. Though no chemical analysis has been made of its exhalations, it is reasonable to conclude that they may possess certain unseen virtues, specific chemical properties and affinities which may enable them to mitigate, neutralize, decompose or render inert malaria, the bacillus of consumption and the micro-organisms of other diseases.

Physicians and laymen alike contend for the hygienic and health-preserving properties of the piney woods of our eastern counties and of the piney sections of our Atlantic slope. They ascribe to the presence of our piney forests the proverbial and remarkable exemption of the inhabitants of this vast extent of territory from malarious diseases, from consumption, from puerperal-fever, from continued fevers, diphtheria, and other diseases originating from the presence of germs. The fact that piney regions of country are healthy is proverbial and traditional—established beyond cavil or dispute.

It is true that good drinking-water is almost always found in piney lands, and this may have some causative action in producing the healthfulness of our piney sections. It is true that the soil of pine forests is generally sandy, and its capacity and powers to absorb not alone malaria, but bacterial germs, as they float in the air, may have some relation to this healthfulness. But that, above and beyond all this, there is a *something* in the pine-tree that is antidotal to malarial poison, antagonistic and hostile to the causes of other fevers, to puerperal-fever, to diphtheria, to septic infection and blood-poisoning, and germ disease generally, is a well-established truth of observation and experience.

Although these sanitary facts as to the pine-tree are treated with strange indifference and neglect, both by the medical and non-medical public, the subject is by no means new, illustrating that when we look into the history of almost any subject how little there is new in its facts and its phenomena. What is new consists in our manner of regarding them, our comprehension and application of them.

The pine and its preparations have been long regarded as

hygienic and curative, but as especially remedial in the antiseptic treatment of pulmonary diseases. The adoption and success of antiseptic methods of treatment of pulmonary affections have been recorded again and again, and as often have met with opposition, because the treatment has often been held to be empirical. But long experience and faithful investigations have reduced it to a more scientific basis. The antiquity of the fact of the antiseptic treatment of pulmonary disease in the way of tar vapors dates back to the days of Hippocrates and Galen. Galen advised consumptive patients to settle in the vicinity of Vesuvius and *Ætna*, and to inhale sulphurous and tar vapors and sea air. It is a noticeable fact in the history of pulmonary therapeutics in the last hundred years of the frequency with which tar vapor has been advocated as of great value in the treatment of lung disease. Dr. Rush, of Philadelphia, in 1787, Dr. Beddoes, of England, about the same time, and Sir Alexander Chrichton, about the same time, all stated that they had met with great success in treating consumption by the inhalation of the vapor of boiling tar. Since the time of Hippocrates and Galen other illustrious physicians, Skoda and others have used the inhalations of the vapor of tar and turpentine with much success in phthisis, pulmonary gangrene, and in bronchial troubles and catarrhal affections of the air-passages. Its application has often failed because of the useless attempt to test any method of treatment in cases of advanced phthisis. No line of treatment will be effective in causing suppurating cavities to close up and heal, or is competent to replace lung tissue that has been destroyed by progressive ulceration and disintegration. Hundreds of cases of consumption are daily coming before us already in this State. That is why so many advanced cases die who go for relief to the piney lands of Florida and other States.

Coming down along the line of inquiry from the days when Rush and Skoda and the earlier physicians and the vapor of tar and turpentine as remedies, to more recent times, let us see if experience now teaches that pine forests and preparations and extracts from the pine-tree have an influence in sterilizing and destroying and neutralizing miasmatic emanations, germs, and microbes. Wherever a turpentine still is in active operation we find an agency at work which is inimical

to miasm and to living germs and microbes. Localities and places sickly previous to the erection and operation of one or more turpentine stills have been subjected to such atmospheric changes and sanitary improvement as to become healthy. When the turpentine stills have ceased to be used the former unhealthiness of the localities have generally returned, favoring the belief that the process of distillation of the spirits from the crude turpentine is sanitary. Likewise persons of weak lungs who habitually work around and in immediate proximity to turpentine stills while this distillation is going on, generally improve in their pulmonary troubles and in their general health.

We learn by observation of the health-giving properties of the pine-tree as it abounds in the sandy regions of the Atlantic slope of North and South Carolina. The inhabitants are taught by experience that if they remain during the warm season upon the sounds, bays, creeks, rivers and other low places that are liable to malaria and zymotic causes of disease, they are apt to be sickly. As a consequence we find them inclined to remove during the sickly season to the higher regions of the pine, and that in so doing they are generally exempt from malarial and typhoid diseases and affections caused by micro-organisms. Farmers and others who reside near the coast of our own State and that of South Carolina are familiar with these significant facts and profit by them when they are able to do so. The intelligent farmer who clears his swamp land and cultivates his low-land farm knows that he is in danger of sickness if he constructs his dwelling in the same place and inhabits it, and hence he chooses some elevated pine ridges as his residence, with the air and drinking-water purified with the emanations from the surrounding pines. The great work of sanitary progress in the way of better drinking-water, more efficient drainage, and purer air that is going on in our State, is steadily *preventing preventable* causes of disease and lessening our bills of mortality.

It deserves to be repeated, with emphasis, that in the piney belts of North and South Carolina, diphtheria, typhoid and malarial-fever, puerperal-fever, and the whole class of zymotic diseases are extremely rare. I cannot say positively that the peculiar exemption of these extensive piney belts from these

diseases, including consumption, is due to the pine-tree, but it is a fact beyond dispute that where the turpentine-tree is abundant certain classes of diseases, such as consumption, malarial disease, diphtheria, puerperal-fever, and other affections due to bacterial infection or to the presence of germs and microbes, are of very rare occurrence. Why this is so remains to be discovered by the investigations of some scientific germs. As to the remedial effects of turpentine in diseases of the class mentioned by our experience and that of every observant physician will bear testimony to its admirable action. Its daily increased use by the profession in this class of diseases everywhere, and its traditional use for ages, both internally and externally, bear strong testimony of its worth. For external use for cuts and wounds, I know of no remedy its equal. I have often seen the fresh gum from the turpentine boxes applied to cuts and always with the happiest results. The application of the strong spirits to the diphtheritic throat destroys the membrane as I have never seen it done by any other application. Whether its beneficial action, administered externally or internally, does not depend upon its adaptation and power to sterilize and destroy bacterial germs and living organisms, as they exist in cuts and wounds, and upon internal surfaces when typhoid-fever assails a patient, for example, or the poison of miasm sets up bilious-fever in the system, may well be a matter of inquiry.

Another peculiarity of the piney belts is their exemption from the septic poisoning, gangrene, and erysipelas, of wounds and surgical operations. During my professional life I have frequently been called upon to perform important and unimportant surgical operations, as my country practice has extended to piney woods sections. In no operation that I have performed in the piney woods, or amputation, or wound that I have treated in a piney belt, have I had to combat pyæmia, septicæmia, erysipelas, or gangrene. The purity of the air of the piney belts seems to favor surgical treatment in every respect. If city hospitals, infirmaries, almshouses, and other places for the treatment of medical and surgical cases could be changed from cities and towns and other localities where the air is not good to the antiseptic influences of pure air and piney communities, they could be managed more successfully

and with less mortality. My observation and experience as a surgeon during the late war, in charge of a hospital most of the time averaging from three to four hundred sick Confederate soldiers, gave me valuable lessons and impressive memories all along this line.

It may be well just here to remark that outside of our piney sections nearly all of our diseases are more or less malarious the year round, and are disposed to be periodical, demanding quinine. For several years we have had less of malarial disease and more of typhoid, though the typhoid-fever of the east does not seem to prevail so extensively as it does in the west, and is of a milder and less fatal form. It deserves to be remembered that in our eastern counties and towns we sometimes have, in the same case of sickness, two different poisons and causes of disease operating at the same time. In all such cases this coexistence seems to modify the action of each, produces a milder type of fever, and a variety of treatment to correspond with the periodicity and other characteristics of each particular case.

And now let us briefly apply the statements, views, and reasoning of this paper to the great practical and important question of the health and the resources of health of Eastern North Carolina.

Looking, in the first place, at the malarious localities of the east, we find that malaria has been steadily but surely giving up its intrenchments and strongholds for a number of years, under the influences of drainage and other sanitary measures. With this disappearance of malaria and of the causes of typhoid-fever as well, under the operation of preventable and removable means antagonistic and destructive, too, of typhoid poison, there has been gradually going on in the east less and less of malarial and typhoid-fever. So that, in relation to these diseases alone, the public health in Eastern North Carolina has greatly improved and is steadily improving. With the system of sanitation now at work in all our eastern towns, counties, and cities, there is every reason to believe that the whole family of malarious and typhoid-fever will steadily decrease and will be eventually unknown. But be it remembered that a very large portion of the east abounds in pine-trees and is covered by the piney belts, that are remarkably

exempt from disease. The piney sections embrace a large portion of the east from the coast to near Raleigh and Fayetteville, and higher up, and from Virginia to South Carolina. Within this vast area of piney land it is likely that there exists *one half* or *two thirds* of Eastern North Carolina. It is held to be almost wholly exempt from malarial and typhoid causes of disease, from diphtheria and zymotic diseases and other affections arising from germs and microbes, upon the ground that these diseases do not find a congenial home in our pine forests. If the observations and experience of physicians and laymen all along these lines are to be regarded, there is no portion of North Carolina more healthy than the east. Our statistics of health, longevity, and bills of mortality will sustain this view. And yet in this important relation great injustice and very great wrong has been done the east, with its fertile lands, magnificent forests, abundance of mineral resources and wealth of climate. It is time that truth should prevail, that erroneous views should be corrected in regard to the great attractions and unrevealed advantages of the east. Laborers and men of skill and capital in other States and across the ocean, seeking new and healthier homes with more inviting fields of enterprise and investment, have long been deceived and blinded by misapprehensions and false statements bearing upon these grave interests. The incontrovertible truth has been suppressed and withheld from other States and other countries that no healthier homes can be found than throughout Eastern North Carolina, and no portion of earth where the soil is more generous and where nature has been more bountiful and magnificent in all those gifts which contribute most to the comfort, prosperity, and happiness of man.

But certain causes have operated against the development and utilization and appreciation of our health benefits and other great things which kind and generous nature has done for our eastern people—one is the great objection of capital to invest where the negro ignorant vote is overwhelming and where taxation is at the disposal of ignorant suffrage. And here is an argument for popular education strong, binding, invincible, and paramount. Another is the widespread misapprehension which exists in regard to our sanitary condition,

our drinking-water, our climate, and other health benefits. As already said, the observation and experience of physicians who have practised in our reclaimed and well-drained swamp lands and piney belts will bear out the statement that, even admitting the presence of malaria, typhoid-fever causes, and zymotic diseases in these localities, they are less severe in form, far more amenable to treatment, and less fatal than in the hilly and mountainous regions of our State; that while it is the boast that the higher altitudes of the west produce specimens of more robust physical stamina, medical observation and experience justify the statement that in the matter of health and longevity the east will compare favorably, not alone with the west, but with almost any part of the American Continent. It is not unlikely that climatic changes in the east have been going on for a number of years that have combined with other causes in improving its sanitation and in rendering the entire east more salubrious. The existence of a semi-tropical climate along our North Carolina coast, embracing pine forests, at the mouth (extended) of the Cape Fear River, as shown by the thermometer and vegetable growths, recommends this section eminently for health and as suitable for a sanitarium, as higher altitudes, especially for pulmonary complaints.

One great obstacle to development and progress in the east is the failure of our own people to appreciate our soil and climate and to place a just estimate upon the precious gifts and manifold blessings which nature has so richly spread before us, including that of health. Where nature has done the most for man, there man has done the least for himself. The proverbial ignorance and indolence of our people renders them insensible to enterprise, dormant and indifferent to immigration of capital and suitable labor. We lay supinely upon our backs and wait, in contentment, for others from abroad to stimulate us to effort, and to come and tell us what to do and how to do it. Our hope is in the infusion of new blood and better methods that will reclaim our farms, utilize our forests, erect more manufactories, build up schools, churches, towns and cities, people our railroads.

Discussion.—Dr. HAIGH thought it was his duty to bear witness to some of the facts brought out in the paper. We

have all along the line of this country been too quiet and entirely too modest in regard to the health-giving properties of our climate. All through this middle country of Eastern North Carolina, where in years past malaria existed so extensively, the change has been simply marvellous. He spoke of the severity and fatality of the bilious-fevers that were so common at the time he began to practise medicine, about forty years ago, saying they were nearly as malignant in some cases as yellow-fever. Now it is a rare thing to have bilious-fever. We have the mild forms of intermittent-fever and what he calls intestinal-fevers, for they rarely reach the type of typhoid. He said our climate is inviting to those seeking health. He was glad the doctor brought forth the virtues of the pine. It is especially useful in irritation of the mucous membrane of the bowels. During the war he had to depend upon it to a very large extent, using it both externally and internally in mucilaginous drinks, and since then some of his worst forms of low fevers have been entirely relieved by the use of oil of turpentine. There is one point on which greater stress should be laid—it is the system of drainage in the eastern part of the State, which has greatly improved. For a long time the people of the hill country have been afraid to come to the low country for fear of having fever, while we think it is sometimes more dangerous to go to the high country. He thinks we have as healthy a country as any part of the State ; we are more free from violent disease. We ought not longer to allow the stigma under which we have rested so long. He was not prepared to endorse what the doctor said in regard to diphtheria. He does not fully understand the nature of the disease nor what causes it. He does know that in certain regions where there was no manner of filth, where everything was as clean as possible and the water perfectly pure and the air was filled with the perfume of the pine, he has seen some of the worst cases of diphtheria he ever encountered. He has never been able to satisfy himself that it is a filth disease ; as other diseases, it is possibly intensified by the surroundings as found in large cities.

Dr. POTTER thought he could give some practical demonstrations of the healthfulness of the pine forest. Anterior to the late war the farmers living near the water-courses were in

the habit of moving up into the higher pine regions on the approach of summer, and they rarely suffered from malaria. He cited the case of a man who thought he might do just as well if he remained in his winter home in the lowlands. He tried it for two summers, and during those two years lost three of his family. He thought we seldom have a genuine case of typhoid-fever. He has seen diphtheria in the highest pine regions where he could see no cause for it, but where the diseases seemed almost to originate *de novo*. He mentioned an epidemic that started in the barracks in a small town where he was in charge as surgeon. On searching for the cause he found under one of the platforms connected with the building a reeking cesspool. As soon as this was cleaned there were no more cases of the disease. This outbreak seemed to have a cause in this cesspool.—*North Carolina Medical Journal*.

EYESIGHT: ITS CARE DURING INFANCY AND YOUTH.

A LECTURE DELIVERED BEFORE THE FRANKLIN INSTITUTE.

By L. WEBSTER FOX, M.D.

MEDICAL science, as taught in our medical colleges to-day, has two objects in view: (1) the prevention of disease; (2) the amelioration of disease and its cure. Some of our advanced thinkers are suggesting a new mode of practice—that is, the prevention of disease by proper hygienic measures. Chairs are being established and professors appointed to deliver lectures on hygiene. Of what value is the application of therapeutics if the human economy is so lowered in its vital forces that dissolution is inevitable? Is it not better to prevent disease than to try the cure after it has become established, or has honey-combed the constitution?

These few preliminary remarks are *apropos* to what is to follow in the subject which I have selected as the topic for discussion this evening.

Vision is the most useful of all the senses. It is the one gift which we should cherish and guard the most. And at no

time in one's life is it more precious than in infancy and youth.

In infancy, when the child is developing, the one great avenue to the unfolding, or, more properly speaking, the development, of the intellect is through the eye. The eye at this period holds in abeyance all the other senses. The child, when insensible to touch, taste, smell or hearing, will become aroused to action by a bright light or bright colors, or the movement of any illuminated object, proving to all that light is essential to the development of the first and most important sense. Again, the infant of but six days of age will recognize a candle flame, while its second sense and second in importance to its development—hearing—will not be recognized for *six* weeks to two months. Taste, touch, and smell follow in regular sequence. Inasmuch as light makes thus early an impression on the delicate organ of vision, how necessary it behooves us to guard the infant from too bright lights or too much exposure in our bright climate. Mothers—not only the young mother with her first child, but also those who have had several children—are too apt to try to quiet a restless child by placing it near a bright flame ; much evil to the future use of those eyes is the outgrowth of such a pernicious habit. Light throws into action certain cells of that wonderful structure of the eye, the retina, and an over-stimulus perverts the action of those cells. The result is that by this over-stimulation the seeds of future trouble are sown. Let the adult gaze upon the arc of an electric light or into the sun, and for many moments, nay hours, that individual has dancing before his vision scintillations and phosphenes. His direct vision becomes blurred, and, as in the case of a certain individual I have in mind, there may be a permanent loss of sight. Parents should take the first precaution in the child's life, and not expose it to a light too bright or glaring. When in the open air let the child's eyes be protected from the direct rays of the sun. While it is impossible to give all children the advantage of green fields and out-door ramblings, yet nature never intended that civilization should debar the innocent child from such surroundings.

An anecdote is related of a French ophthalmic surgeon, that a distinguished patient applied to him for relief from a visual

defect ; the surgeon advised him to go into the country and look out upon the green fields ; the green color with its soothing effect soon brought about a restoration of vision. What I wish to illustrate by this anecdote is that children should be allowed the green fields as their best friend in early life, it tones up the system and rests the eye. After out-door exercise and plenty of it, we should turn our attention to the home surroundings of our little ones. The overheated rooms of the average American home I am sure have more to do with the growing tendency of weak eyes than we feel like admitting. Look at these frail hot-house plants, and can any one believe that such bodies nourished in almost pestilential atmosphere can nourish such delicate organs of vision, and keep them ready for the enormous amount of work each little eye performs daily? The brain developing so rapidly wills with an increasing rapidity the eye to do increasing duties. Note the result : a tendency to impoverished circulation first, and the eye with its power to give the brain a new picture in an infinitesimal short space of time means lightning-like circulation—the eye must give way by its own exhaustion.

Civilization is the progenitor of many eye diseases.

After a boy has grown to that age when it becomes necessary for him to begin the education prescribed by the wise men, obstacles are placed in his way to aid again in causing deterioration of vision. It is not so much the overcrowded condition of our school-rooms as the enormous amount of work that causes deterioration of sight. Our children begin their school-life at a time when they are too young. A child at six years of age who is forced to study all day or even a part of a day will not run the same race that one will who commences his studies at ten—all things being equal. The law prescribes that so much time must be devoted to study, so many forms must be passed, so many books must be read, so many pages of composition written—all probably in badly-lighted rooms, or by artificial light. Note the effect : first, possibly, distant vision gives way ; the teacher, sympathizing with the overburdened child, tries to make the burden lighter by changing his position in the room or placing him under the cross-light from a window ; as the evil progresses the child is taken to an ophthalmic surgeon and the inevitable result—

glasses—rightly called “crutches for the eyes”—are given. What would be thought of a cause which would weaken the legs of that boy so that he would have to use crutches to carry him through life? If civilization be responsible for an evil, let our efforts be put forth in finding a remedy for that evil.

A discussion, in a recent number of the *British Medical Journal*,* on “The Claims and Limitations of Physical Education in Schools,” has many valuable hints which should be followed by educators in this country. Dr. Carter, in the leading paper on this subject, makes the pregnant remark, “If the hope is entertained of building up a science of education, the medical profession must combine with the profession of teaching, in order to direct investigation and to collect material essential to generalization. Without such co-operation educational workers must continue to flounder in the morasses of empiricism, and be content to purchase relative safety at the cost of slow progress, or no progress at all.” In other words, an advisory medical board should co-exist with our board of public education, to try to hold in check or prevent a further “cruelty in trying to be kind.” Private institutions of education recognize the importance of physical training and development, and in such institutions the deterioration of vision is in proportion, less than in institutions where physical training is not considered. In one school of over 200 middle-class girls, Dr. Carter found that, during a period of six years, no fewer than 10 per cent of the total number of girls admitted during that time have been compelled to take one or more terms’ leave of absence, and of the present number 28 per cent have medical certificates exempting them from gymnastic exercise, and 10.25 per cent of the total present number wear eye-glasses of some kind or other. From my own experience the same number of students in our schools would show about the same percentage of visual defects. These questions are of such growing importance that not only instructors, but the medical fraternity should not rest until these evils are eradicated.

Dr. J. W. Ballantyne, of Edinburgh, in a lecture† on diseases of infancy and childhood, says: “The education of the

* November 1st, 1890.† *Lancet*, November 1st, 1890.

young people of a nation is to that nation a subject of vital importance." The same writer quotes the startling statement made by Professor Pflüger, that of 45,000 children examined in Germany more than one half were suffering from defective eyesight, while in some schools the proportion of the short-sighted was 70 or 80 per cent, and crowning all was the Heidelberg Gymnasium, with 100 per cent. These figures, the result of a careful examination, are simply startling, and almost make one feel that 'twere better to return to the old Greek method of teaching by word of mouth.

Professor Pflüger attributes this large amount of bad sight to insufficient lighting of school-rooms, badly printed books, etc. One must agree with a certain writer, who says: "Schools are absolute manufactories of the short-sighted, a variety of the human race which has been created within historic time, and which has enormously increased in number during the present century." Granting that many predisposing causes of defective vision cannot be eliminated from the rules laid down by our city fathers in acquiring an education, it would be well if the architects of school buildings would bear in mind that light when admitted into class-rooms should not fall directly into the faces of children, but desks should be so arranged that the light must be sufficiently strong and fall upon the desk from the left-hand side. My attention has repeatedly been called to the cross-lights in a school-room. The light falling directly into the eyes contracts the pupil which is already contracted by the action of the muscle of accommodation in its effort to give a clearer picture to the brain. This has a tendency to elongate the eyeball, and as a permanent result we have near-sightedness. Where the eyeball has an unnatural shortness this same action manifests itself by headaches, chorea, nausea, dyspepsia, and ultimately a prematurely breaking-down of health. The first symptom of failing sight is a hypersecretion of tears, burning of the eyelids, loss of eyelashes, and congestion either of the eyelids or the eyeball proper.

The natural condition of aboriginal man is far-sighted. His wild life, his nomadic nature, his seeking for game, his watching for enemies, his abstention from continued near work, have given him this protection. Humboldt speaks of the

wonderful distant vision of the South American Indians; another traveller in Russia of the power of vision one of his guides possessed, who could see the rings of Saturn. My recent examinations among Indian children of both sexes also confirm this. While the comparison is not quite admissible, yet the recent investigations carried on by Lang and Barrett, who examined the eyes of certain mammalia, found that the larger number were hypermetropic or far-sighted. With all the difficulties which naturally surround such an examination, they found that in fifty-two eyes of rabbits, thirty-six were hypermetropic and astigmatic, eight were hypermetropic only, five were myopic and astigmatic, and others presented mixed astigmatism. In the eyes of the guinea-pig about the same proportion of hypermetropia existed. The eyes of five rats examined gave the following result: Some were far-sighted, others were hypermetropic and astigmatic, one was slightly myopic, and one had mixed astigmatism. Of six cows, five were hypermetropic and astigmatic and one was slightly myopic.

Six horses were also examined, of which one had normal sight, three were hypermetropic and astigmatic, and two had a slight degree of astigmatism. They also examined other animals and the same proportion of hypermetropia existed. These gentlemen found that as an optical instrument, the eye of the horse, cow, cat, and rabbit is superior to that of the rat, mouse, and guinea-pig.

I have for the last five years devoted considerable attention to the vision of the Indian children who are pupils at two institutions in this city. I have at various times made careful records of each individual pupil and have from time to time compared them. Up to the present there is a growing tendency toward myopia or short-sightedness—*i.e.*, more pupils from year to year require near-sighted glasses. The natural condition of their eyes is far-sighted, and the demands upon them are producing many nervous or reflex symptoms, pain over the frontal region and headaches. A good illustration of the latter trouble is showing itself in a young Indian boy, who is at present undergoing an examination of his vision as a probable cause for his headaches. This boy is studying music; one year ago he practised two hours daily on the piano

and studied from three to five hours besides. This year his work has been increased; he is now troubled with severe headaches, and after continued near work for some time letters become blurred and run together. This boy is far-sighted and astigmatic; glasses will correct his defect, and it will be interesting to note whether his eyes will eventually grow into a near-sighted one. I have several cases where the defective vision has been due entirely to other causes, such as inflammation of the cornea, weakening this part of the eye, and the effect in trying to see producing an elongation of the anterior portion of the eyeball, and this in turn producing myopia. The eye of the Indian does not differ materially from that of any deeply pigmented race. The eyeball is smaller than in the Caucasian, but when we examine the interior we find the same distribution of the blood-vessels and same shape of the optic nerves. The pigment deposit in the choroid is excessive and gives, as a background to the retina, a beautiful silvery sheen when examined with the ophthalmoscope. One thing which I noticed particularly was the absence of this excessive deposit of pigment and absence of this watered-silk appearance in the half-breeds, they taking after the white race.

The absence of many of the intraocular diseases common among the white children were also absent, especially those diseases which are the result of near work.

It is a well-known fact among breeders of animals, that where animals are too highly or finely bred the eye is the organ first to show a retrogression from the normal. In an examination by myself some years ago among deaf mutes, I found the offspring of consanguineous marriages much affected, and while not only were many afflicted with inflammatory conditions of the choroid and retina, their average vision was much below the normal.

My quoting Messrs. Lang and Barrett's figures was to bring more prominently to the notice of my hearers the fact that the eyes of primitive man resembled the eyes of the lower mammalia, and that the natural eye as an organ of vision was hypermetropic, or far-sighted, and that civilization was the cause of the myopic or near-sighted eye. Nature always compensates in some way. I grant that the present demands of

civilization could not be filled by the far-sighted eye, but the evil which is the outgrowth of present demands does not stop when we have reached the normal eye, but the cause once excited, the coats of this eye continue to give way, and myopia or a near-sighted condition is the result.

Among 300 Indians examined, I found when I got to the Creeks, a tribe which has been semi-civilized for many years, myopia to be the prevailing visual defect.

Without going into statistics, I am convinced from my experience that the State must look into this subject and give our public-school system of education more attention, or we as a people will soon be known as a "spectacled race."

Myopia or short-sightedness among the Germans is growing at a tremendous rate. While I do not believe that the German children perform more work than our own children, there is one cause for this defect which has never been touched upon by writers, and that is the shape of the head. The broad, flat face or German type, as I would call it, has not the deep orbit of the more narrow, sharp-featured face of the American type. The eye of the German standing out more prominently and in consequence less protected, is thereby more prone to grow into a near-sighted eye. One of the significant results of hard study was recently brought to my notice by looking over the statistics on the schools of Munich in 1889. In those schools 2327 children suffered from defective sight, 996 boys and 1331 girls.

Of 1000 boys, in the first or elementary class, 36 are short-sighted; in the second, 49; in the third, 70; in the fourth, 94; in the fifth, 108; in the sixth, 104; and in the last and seventh, 108. The number of short-sighted boys, therefore, from the first class to the seventh, increases about threefold. In the case of the girls, the increase is from 37 to 119.

These statistics in themselves show us the effects of overwork, incessant reading or study by defective gas or lamp-light, or from an over-stimulating light, as the arc light, late hours, dissipation, and frequent rubbing of the eye, also fatigue, sudden changes from darkness to light, and what is probably worse than all, reading on railway trains. The constant oscillations of the car cause an over-activity of the muscle of accommodation, which soon becomes exhausted, the brain

willing the eye to give it a clear photograph continues to force the ciliary muscle, which muscle governs the accommodation, in renewed activity, and the result may easily be foretold.

The fond parents finding that the vitiated air of the city is making their once rosy-cheeked children turn pale, seek a remedy in the fresh air of the country ; the children find their way to city schools ; this necessitates travelling so many miles a day in railway cars ; the children take this opportunity of preparing their studies while *en route* to the city, and here is where they get their first eye-strain. Children have the example set them by their parents or business men who read the daily papers on the trains. Children are great imitators, and when their attention is called to the evil, quote their parents' example and they follow it. No wonder each generation is growing more effeminated.

The light in sick-rooms should never fall directly on the eyes, nor should the rooms be either too dark or too light.

The Esquimaux and Indians long ago noted the fact that sunlight reflected from freshly-fallen snow would soon cause blindness.

The natives of Northern Africa blacken themselves around the eyes to prevent ophthalmia from the glare of the hot sand. In Fiji, the natives when they go fishing blacken their faces. My friend, Dr. Bartelott, presented me with a pair of eye protectors which he brought from Alaska. The natives use them to protect themselves from snow-blindness. These snow spectacles, or snow eyes, as they are called, are usually made out of pine wood which is washed upon their shores, drift-wood, from southern climes.

The posterior surface is deeply excavated to prevent its obstructing the free motion of the eyelids, on each side a notch is cut at the lower margin to allow a free passage for the tears. The upper margin of the front surface is more prominent than the under to act as a shade to the eyes. The inner surface is blackened to absorb the excessive light. The openings are horizontal slits. The eyes are thus protected from the dazzling effect of the light.

My friend Dr. Grady, of Omaha, communicated to me a history of three hunters who almost lost their eyesight by too long exposure to the bright rays of the sun falling on snow.

The abuse of tobacco leads to impairment of vision in the growing youth. Cigarette-smoking is an evil. I am inclined to believe that the poisons inhaled arrest the growth of boys ; surely it prevents a mental development, and when carried to excess affects vision more by lessening the power of nerve conduction than acting directly on the eye.

It is not the one cigarette which the boy smokes that does the harm, but it is the one, two, or three packages smoked daily. This excessive smoking thoroughly perverts all the functions which should be at their best to aid this growing youth. First we have failing digestion, restless nights, suspension of growth, lack of mental development, the loss of nerve tone, loss of the power of accommodation in vision, failing sight, headaches, enfeeblement of the heart. Let a man who is a habitual smoker of cigars attempt to smoke even one package of cigarettes and he will complain of nausea, dry throat, and loss of appetite. If a strong man is so much affected by this poison, how much less can a boy resist the inroads of such poisons. In Germany the law forbids the sale of cigarettes to growing boys. New York State has a similar law, and why should our own or any other State be behind in passing prohibitory laws against this evil ; and this is a growing evil.

I have never seen a case of tobacco amblyopia in boyhood, but such a condition is not infrequent in adults. In boys the action of nicotine acts especially upon the heart, the impulse is rendered weaker and intermittent, and many young boys lay the seeds of organic disease which sooner or later culminates fatally. Boys should be prohibited from smoking, first by their parents, second by law, but not such laws whose enforcement is a failure, third by placing a heavy fine upon dealers who sell to minors. The pernicious evil of intoxication is no less an evil upon the nervous system of a youth than is the habit of cigarette smoking, but fortunately this habit is less common. Having traced from aboriginal man to the present civilized individual the cause of his myopia, what must we do to prevent a further deterioration of vision ? Unfortunately, the physician of our country is not, as I am told, like the Japanese physician. Our medical men are called to attend people who are ill and to try to get them well—the Japanese physician is paid only to keep his patients in health.

The first effort parents should make is to see that their children have plenty of out-door exercise. Good warm clothing in winter and light-texture cloth in summer. A great difference of opinion exists as to the age at which a child should begin its studies. I feel sure that the boy who commences his studies at ten will far outrun the one who commences study at six. Every child should commence his lessons in the best kindergarten, the nursery. Let object lessons be his primer—let him be taught by word of mouth—then, when his brain is what it should be for a boy of ten, his eyes will be the better able to bear the fatigue of the burdens which will be forced upon him. Listen to what Milton has left on record as a warning to those young boys or girls who insist upon reading or studying at night with bad illumination :

“ My father destined me, from a child, for the pursuits of polite learning, which I prosecuted with such eagerness that, after I was twelve years old, I rarely retired to bed, from my lucubrations, till midnight. This was the first thing which proved pernicious to my eyes, to the natural weakness of which were added frequent headaches.” Milton went blind when comparatively a young man, and it was always to him a great grief. Galileo, the great astronomer, also went blind by overwork. It was written of him, “ The noblest eye which ever nature made is darkened—an eye so privileged, and gifted with such rare powers, that it may truly be said to have seen more than the eyes of all that are gone, and to have opened the eyes of all that are to come.”

When the defect of far-sightedness or near-sightedness exists, we have but one recourse—*spectacles*.

Some time ago I published, in the *Medical and Surgical Reporter*, an article on the history of spectacles. The widespread interest which this paper created has stimulated me to continue the research, and since this article appeared I have been able to gather other additional historical data to what has been described as an invention for “ poor old men when their sight grows weak.”

The late Wendell Phillips, in his lecture on the “ Lost Arts,” speaks of the ancients having magnifying glasses. “ Cicero said that he had seen the entire *Iliad*, which is a poem as large as the New Testament, written on a skin so

that it could be rolled up in the compass of a nutshell ;" it would have been impossible either to have written this, or to have read it, without the aid of a magnifying glass.

In Parma, a ring 2000 years old is shown which once belonged to Michael Angelo. On the stone is engraved the figures of seven women. You must have the aid of a glass in order to distinguish the forms at all. Another *intaglio* is spoken of—the figure is that of the god Hercules ; by the aid of glasses you can distinguish the interlacing muscles and count every separate hair on the eyebrows. Mr. Phillips again speaks of a stone twenty inches long and ten inches wide containing a whole treatise on mathematics, which would be perfectly illegible without glasses. Now, our author says, if we are unable to read and see these minute details without glasses, you may suppose the men who did the engraving had pretty strong spectacles.

"The Emperor Nero, who was short-sighted, occupied the imperial box at the Coliseum, and, to look down into the arena, a space covering six acres, the area of the Coliseum, was obliged, as Pliny says, to look through a ring with a gem in it—no doubt a concave glass—to see more clearly the sword play of the gladiators. Again, we read of Mauritius, who stood on the promontory of his island and could sweep over the sea with an optical instrument to watch the ships of the enemy. This tells us that the telescope is not a modern invention."

Lord Kingsborough, speaking of the ancient Mexicans, says : "They were acquainted with many scientific instruments of strange invention ; whether the telescope may not have been of the number is uncertain, but the thirteenth plate of *Dupaix's Monuments*, part second, which represents a man holding something of a similar nature to his eye, affords reason to suppose that they knew how to improve the powers of vision."

*Our first positive knowledge of spectacles is gathered from the writings of Roger Bacon, who died in 1292. Bacon says : "This instrument (a plano-convex glass or large segment of a sphere) is useful to old men and to those who have weak eyes ; for they may see the smallest letters sufficiently magnified."

Alexander de Spina, who died in 1313, had a pair of spectacles made for himself by an optician who had the secret of their invention. De Spina was so much pleased with them that he made the invention public.

Monsieur Spoon fixes the date of the invention between 1280 and 1311. In a manuscript written in 1299 by Pissazzo, the author says: "I find myself so pressed by age that I can neither read nor write without those glasses they call spectacles, lately invented, to the great advantage of poor old men when their sight grows weak." Friar Jordan, who died in Pisa in 1311, says in one of his sermons, which was published in 1305: "That it is not twenty years since the art of making spectacles was found out, and is indeed one of the best and most necessary inventions in the world." In the fourteenth century spectacles were not uncommon and Italy excelled in their manufacture. From Italy the art was carried into Holland, then to Nuremberg, Germany. In a church in Florence is a fresco representing St. Jerome (1480). Among the several things represented is an inkhorn, pair of scissors, etc. We also find a pair of spectacles, or *pince-nez*—the glasses are large and round and framed in bone.

It was not until 1575 that Maurolicus, of Messina, pointed out the cause of near-sightedness and far-sightedness, and explained how concave glasses corrected the former and convex glasses the latter defect.

In the wake of advanced education stalks the spectacle age. Any one watching a passing crowd cannot fail but note the great number of people wearing spectacles. Unfortunately it is not limited to adults, but our youths of both sexes go to make up this army of ametropes.

At what age should children first wear glasses? This is a much debatable question. Where there is simply a defect of vision I should never prescribe a pair of glasses for a child under ten years of age. A child under this age runs many risks of injury to the eyeball by accident to the glasses, and to cut the eye with glass is a very serious affair. Rather let a child go without study, or even with impaired vision, than run the risk of a permanent loss of sight.

Another source of evil I must call your attention to, and that is the indiscriminate use of glasses given by itinerant

vendors of spectacles who claim a thorough knowledge of the eye, who make examination free, but charge double price for glasses.

Persons, before submitting themselves into the hands of opticians, should know that they are not suffering from any incipient disease of their eyes. I do not for a moment claim that a practical optician cannot give you a pair of glasses which will make you see—he does nothing more than hand you a number of pairs of glasses and you select the one pair which you think answers the purpose. How can any one but a medical man know that the impairment of vision does not arise from diminished sensibility of the retina? If so, the glasses just purchased, which may be comfortable for a time, may cause an irreparable loss of vision. Every ophthalmic surgeon will tell you that he has had a number of such cases. Do not be misguided by purchasing cheap spectacles. Glasses advertised as having “remarkable qualities” are always to be passed by. They have “remarkable qualities;” they always leave the person wearing them worse at the end of a few months. Whenever an eye finds relief in a shaded or colored glass, something is going wrong with the interior of that eye. Seek advice, but do not trust the eyes of yourself, much less those of your children, in the hands of the opticians who advertise their examinations free.

Such individuals should be brought before a tribunal, and the matter sifted as to whether the sense of sight is less to be taken care of than if that same patient were ill with pneumonia, and a druggist were to prescribe remedies which might or might not aid this patient. If one man must comply with the law, why should not the other? Our medical colleges are lengthening the course of studies; the advances in the various departments of science demand this. It is by the aid of the ophthalmoscop. that many obscure diseases are diagnosed, and while it is impossible for every young man who obtains a diploma to become thoroughly proficient in the use of this instrument, yet the eye shows to him many conditions which guide him to the road of successful treatment. Think of a case of optic neuritis—inflammation of the optic nerve—going to an optician and fitting one set of glasses after another until the patient suddenly discovers that blindness is inevitable.

Many individuals, and very intelligent ones at that, think that so long as a glass makes them see, that is all they need. When we know that scarcely two eyes are alike, we can at once feel that it is very important that each eye should be properly adjusted for a glass ; by this we are sure of having comfort in reading and preserving vision.

There is a very important defect in vision which should be detected as early in life as possible, and that is color-blindness. The boy who is a color-blind will always remain a color-blind, and as forty in every 1000 of the male sex are color-blind, it is essential that they know their defect, and train their course accordingly. It would be to the advantage of all boys to undergo such an examination once in their school-life ; a color-blind would be useless where the selection of color entered into his life-work. If a boy had a talent for drawing or engraving and were color-blind, he would make a success of his life, whereas if he would attempt to mix paints of different colors he would be a failure.

I shall not dwell upon the scientific part of color-blindness, nor discuss either the Young-Helmholtz or the Hering theories of color defect, but shall deal with its practical use in every-day life.

Until the year 1853 very little was known about color-blindness, and much less written about it.

Dr. George Wilson, in 1853, wrote several articles, which were published in the *Edinburgh Monthly Journal of Medical Science*. These articles created such an interest in the scientific world, that Dr. Wilson brought out a book, entitled *Researches on Color-Blindness*, two years later. So thoroughly did Dr. Wilson sift this subject that no writer up to the present day has added anything practical to what was then known.

Dr. Wilson writes in his preface : " The most practical relation of color-blindness is that which it has to railway and ship signals." He further states : " The professions for which color-blindness most seriously disqualifies are those of the sailor and railway servant, who have daily to peril human life and property on the indication which a colored flag or a lamp seems to give."

Dr. Bickerton, in an article on this same subject, speaking of the careless way in which lights were used on ships at sea,

says: "Until the year 1852 there were no definite rules regarding the carrying of lights at night by vessels at sea. . . . At this time the subject of color-blindness had not awakened the attention of practical observers, and had the fact been known that between 3 and 4 per cent of the whole male population are color-blind, some other mode might have been devised to indicate the positions of vessels at night than by showing red and green lights."

If it is so very important to have sailors with good color perception, where, at least, four men are on the lookout, how much more important is it to have our engine-drivers with perfect color perception, where one man alone watches the signal of safety or danger. The growth of our railway system is constantly increasing. We have to-day probably 150,000 men employed in this service. The boys attending public schools to-day in a few years will have to fill the ranks of these men. How important for these boys to know that they have not this defect. If the forty boys in every 1000 are found, what is to be done with them? The engraver, the wood-cut engraver, the etcher, all wish apprentices. I am also informed that these occupations pay well. It requires talent to fill them, and here is an opening for the color-blind. Hear what a color-blind writes: * "I beg to offer some particulars of my own case, trusting it may be of use to you. I am an engraver, and, strange as it may appear, my defective vision is, to a certain extent, a useful and valuable quality. Thus, an engraver has two negative colors to deal with—*i.e.*, white and black. Now, when I look at a picture, I see it only in white and black, or light and shade, and any want of harmony in the coloring of a picture is immediately made manifest by a corresponding discord in the arrangement of its light and shade, or as artists term it, the *effect*. I find at times, many of my brother-engravers in doubt how to translate certain colors of pictures, which to me are matters of decided certainty and ease. Thus, to me it is valuable." Having already spoken about the importance of having all boys undergo an examination for color-blindness once in their school-lives, we have two very good reasons for making this suggestion.

* Wilson, p. 27.

First, prevent a boy following a trade or occupation where he is incapacitated ; and, secondly, let him be trained for a certain trade or occupation when the defect exists. The savage races possess the perception of color to a greater degree than do civilized races. I have just concluded an examination of 250 Indian children ; 100 were boys. Had I selected 100 white boys from various parts of the United States I would have found at least five color-blinds ; among the Indian boys I did not find a single one. Some years ago I examined 250 Indian boys and found two color-blind, a very low percentage when compared with the whites. Among the Indian girls I did not find any. When we know that only two females in every 1000 among whites are color-blind, it is not surprising that I did not find any examples among the Indian girls.

The usual tests for color-blindness are the matching of wools ; the common error the color-blind falls into is matching a bright scarlet with a green. On one occasion, a color-blind gentleman found fault with his wife for wearing, as he thought, a bright scarlet dress, when, in point of fact, she was wearing a bright green. Another color-blind who was very fond of drawing once painted a red tree in a landscape without being aware that he had done so.

Among the whites it affects all classes. It is found as relatively common among the intelligent as the illiterate, and unfortunately, up to the present, we have not discovered any remedy for this defect.

Without quoting many instances where a color-blind man was responsible for accidents at sea, I must quote a case where an officer on the watch issued an order to "port" his vessel, which, if his order had been carried out, would have caused a collision, and a probable serious loss of life.

The letter was written by Captain Coburn, and is to be found in the *Mercantile Marine Reporter*, vol. xiv.

The steamer *Neera* was on a voyage from Liverpool to Alexandria. One night, shortly after passing Gibraltar, at about 10.30 P.M., I went on the bridge, which was then in charge of the third officer, a man of about forty-five years of age, and who up to that time I had supposed to be a trustworthy officer, and competent in every way. I walked up and

down the bridge until about 11 P.M., when the third officer and I almost simultaneously saw a light about two points on the starboard bow. I at once saw it was a green light, and knew that no action was called for. To my surprise, the third officer called out to the man at the wheel, 'port,' which he was about to do, when I countermanded the order, and told him to steady his helm, which he did, and we passed the other steamer safely about half a mile apart. I at once asked the third officer why he had ported his helm to a green light on the starboard bow, but he insisted it was a red light which he had first seen. I tried him repeatedly after this, and although he sometimes gave a correct description of the color of the light, he was as often incorrect, and it was evidently all guesswork. On my return, I applied to have him removed from the ship, as he was, in my opinion, quite unfit to have charge of the deck at night, and this application was granted. After this occurrence I always, when taking a strange officer to sea, remained on the bridge with him at night until I had tested his ability to distinguish colors. I cannot imagine anything more dangerous or more likely to lead to fatal accidents than a color-blind man on a steamer's bridge."

A similar experience is thus related by Captain Heasley, of Liverpool: "After passing through the Straits of Gibraltar, the second officer, who had charge of the deck, gave the order to 'port,' much to my astonishment, for the lights to be seen about a point on the starboard bow were a masthead and green light, but he maintained that it was a masthead and red, and not until both ships were nearly abreast would he acknowledge his mistake. I may add that during the rest of the voyage I never saw him making the same mistake. As a practical seaman I consider a great many accidents at sea arise from color-blindness."

Dr. Farquharson has brought this subject before the House of Commons in England, and measures are being taken which will insure to the travelling public immunity from accidents at sea. I need not mention that the majority of railways of our country have a system of examinations which prevents a color-blind entering their service.

Dr. Wilson makes the suggestion that he noticed a singular expression in the eyes of certain of the color-blind difficult to

describe. " In some it amounted to a startled expression, as if they were alarmed ; in others, to an eager, aimless glance, as if seeking to perceive something, but unable to find it ; and in certain others to an almost vacant stare, as if their eyes were fixed upon objects beyond the limit of vision. The expression referred to, which is not at all times equally pronounced, never altogether leaves the eyes which it seems to characterize."

Dr. B. Joy Jeffries, of Boston, has recently written an article on this same topic, but unfortunately I have not his pamphlet at hand to quote his views on this subject.

In this lecture I have shown that the normal eye is far-sighted. The mammalia have this kind of an eye ; the Indian the same. The white man is fast becoming near-sighted. The civilized Indian is also showing the effects of continuous near work ; and now the question arises, What are we to do to prevent further deterioration of vision ? The fault lies at our own doors. Let us try to correct these now existing evils, so that future generations will, instead of censuring us, thank us for our wisdom.

To aid in a feeble way for the protection of posterity I have formulated ten rules on the preservation of vision :

1. Do not allow light to fall upon the face of a sleeping infant.
2. Do not allow babies to gaze at a bright light.
3. Do not send children to school before the age of ten.
4. Do not allow children to keep their eyes too long on a near object, at any one time.
5. Do not allow them to study much by artificial light.
6. Do not allow them to use books with small type.
7. Do not allow them to read in a railway carriage.
8. Do not allow boys to smoke tobacco, especially cigarettes.
9. Do not necessarily ascribe headaches to indigestion, the eyes may be the exciting cause.
10. Do not allow the itinerant spectacle vendor to prescribe glasses.—*Journal of the Franklin Institute, September, 1891.*

KUMYSGEN.

By WILLIAM DAVIS, M.D., St. Paul, Minn.

THERE is a growing tendency on the part of the most enlightened members of the medical profession to pay more and more attention to the matter of diet in certain diseases, and to rely less and less upon the use of drugs. Even twenty years ago, when the Prince of Wales passed through a severe attack of typhoid-fever, it was the boast of the principal physician in attendance—the late Sir William Gull, I think—that the prince received but two or three doses of medicine during the whole course of the disease, reliance being had upon proper feeding and hygienic measures. Nor is this supplanting of medicine by diet to be looked upon as an evidence that the healing art is declining ; there are not a few diseases where food becomes medicine and outranks all other medicines in importance. For instance, in the diarrhœal diseases of children, what can astringents, opiates, or antiseptics do to relieve the inflamed and irritable digestive tract compared to a bland food whose digestion and assimilation calls for the least possible exercise of the digestive powers ?

Among the many artificially prepared foods to be found in the market at the present time there is one, but recently introduced, that deserves to be brought particularly before the attention of the medical profession. I refer to Carnrick's kumyss powder, or kumysgen, as it is called. As its name shows, its preparation was suggested by the great popularity of kumyss as ordinarily made from milk, and experience warrants the contention of its inventor that it has all the advantages of kumyss and more besides.

The difficulty with the digestion of milk by weak stomachs lies in the effort required to break up the curd which is at once formed by the action of the gastric juice. In the preparation of kumyss this is overcome by mechanical means, and the curd is finely subdivided and mixed with the whey in such a manner as to form a smooth liquid, or, pharmaceutically

speaking, mixture. But the chief difficulty with kumyss is that its preparation is something of an art, and, as it will not keep, it must be made frequently. Now, in kumysgen this difficulty is entirely overcome. The curd having been dried and concentrated by evaporation of its water, its fine separation is easily accomplished, and in the powdered form in which it is prepared it readily makes a solution whose particles are much finer than in kumyss, while at the same time it is possible greatly to increase the nutritive power of the drink prepared.

Kumysgen is thus seen to be a food designed particularly for feeding when the powers of digestion and assimilation are at their feeblest, in those cases where as the result of acute or chronic disease the digestive organs give out altogether and the physician is obliged to exhaust every resource in order to nourish his patient. These patients often utterly refuse to take milk, which is usually the mainstay under such circumstances. Beef tea is a bubble that has long ago been pricked ; even when prepared in the most scientific manner, its nutritive powers are very feeble ; the various preparations of meat quickly tire ; here is a gap which kumysgen stands ready to fill, for under these circumstances it is an ideal food, as it is at once of high nutritive value, of easy digestion and assimilation, and, by the presence of carbonic-acid gas, grateful to the most delicate and sensitive stomach.

To go from the general to the particular, I will describe a recent experience with kumysgen that put this production to the severest test.

During the summer of 1891 a young lady had an attack of acute gastro-enteritis, which, from neglect or imprudence in its management, resulted in an irritable condition of the stomach and intestines such as I have seldom seen in adults, although it is not uncommon in infants after this disease. Everything that this patient took into her stomach—even a few swallows of water—would be followed by colicky pains, and in most cases, after an interval of from ten minutes to half an hour, by a movement of the bowels. All kinds of food were tried, but all produced the same effect, even predigested milk proving no better than the other things taken, while plain milk as well as certain other articles of food invariably

provoked nausea, besides setting up the intestinal irritation. Kumyss as ordinarily made behaved but little better than other preparations of milk.

In this distressing and difficult situation kumysgen has acted like a charm. The very first dose was perfectly well borne, not only by the stomach, but also by the intestines, producing neither nausea, colic, nor defecation. After finding that it agreed well, I administered it a glassful at a time, repeated every three hours, giving nothing else for the first thirty-six hours, then adding milk to the kumysgen, then giving crackers with each glass, and so adding one thing after another to the bill of fare, getting the patient gradually back to a diet that included quite a variety of articles of plain food. I had previously proved the powerlessness of drugs to control the peristaltic action, even six grains of opium administered in the course of two hours failing to keep the bowels quiet, while large doses of bismuth, chalk mixture, catechu, sulphocarbonate of zinc, and other astringent and antiseptic drugs, had been of no avail.

Another affection in which I have found kumysgen a great boon is the vomiting of pregnancy ; it has been my experience that milk is not well borne in this situation, and although even milk and Seltzer or milk and Apollinaris water often fails to agree, I have found kumysgen highly satisfactory. No doubt its effervescence is a great help, but that this alone is not enough is shown by the frequent failure of milk mixed with an aerated water.

Again, for nursing women kumysgen is an admirable addition to the diet, for the purpose of maintaining the flow of milk with as little expense to the system of the mother as possible. It is particularly valuable for those women with whom cow's milk does not agree, for it is certain not to offend the digestive organs, and is fairly palatable. I am confident that here is a great field of usefulness for this preparation.

I have not yet had an opportunity to try kumysgen in typhoid-fever, as that disease has been unusually rare in this part of the country during the last two years, but from my experience with the article in the cases described, I look forward with confidence to using it successfully in typhoid. As I look back upon cases of this disease where milk has not been

well borne, and as a consequence I have been at my wits' end to support the patient's strength, I think what a blessing kumysgen would have been, and I shall certainly grapple with typhoid with more confidence in the future, knowing that I have at hand a preparation so admirably suited to sustain the sufferer in his struggle with the malady.—*New York Medical Journal*, October, 1892.

SOME SANITARY SUGGESTIONS IN HOUSE-BUILDING.

ABSTRACT OF PAPER READ IN SECTION VI., SEVENTH INTERNATIONAL CONGRESS OF HYGIENE, LONDON, 1891.

By H. H. STATHAM, F.R.I.B.A.

THE remarks in this paper refer more especially to houses built in large and crowded cities. Houses built in open situations in the country are permeated by an atmosphere comparatively pure and clean. Houses in large towns are permeated by an atmosphere laden with impurities, which are continually being deposited on every surface that will retain or absorb them. They are also subject, unless carefully watched, to the incursion of various types of vermin, from the popular cockroach down to even more noxious and happily rarer examples. It is, therefore, desirable that they should be constructed of materials least likely to absorb and retain impurities, and that the method of construction should be such as to leave no unlighted and inaccessible spaces.

The habitual construction of ordinary houses in England is not in accordance with these requirements. For many generations the orthodox manner of making a house floor has been to lay wooden joists from wall to wall with boards nailed down above, and a lath-and-plaster ceiling beneath, the space between being an unseen cavern for the accumulation of whatever dirt and decaying matter can find its way in. What the results may be I once saw in the worst form in a case where the boards of an East End school-room were taken up to ascertain the condition of the joists. The space between

those joists was filled nearly to the top with a festering mass of dirt and dust, over which the children had been daily collected. Such a floor would not be allowed in a modern London Board School, but it is the accepted floor for a dwelling-house ; and though the conditions of a well-kept dwelling-house do not encourage such an accumulation as this, I believe the tenants of the best-kept London house which has been inhabited for any length of time would be disagreeably surprised at the amount of dirt they would find under their flooring boards if they looked for it. The old-fashioned system of ceiling up to the under side of the flooring boards and leaving the joists visible is far more sanitary ; the drawback is that it is unsightly, and that it does not shut out sound sufficiently. Double flooring boards with felt between would get over the latter objection to some extent ; but what I wish to recommend is the general adoption of solid floors of iron and concrete with a wood block or plain parquet floor on them, for the average town dwelling-house. They are almost necessarily adopted for houses in flats, why not for every dwelling-house ?

In the same way it has for many generations been the recognized faith that a house roof can only be made by means of rafters laid on the slope with a tie at the foot, and with ceiling joists either at the springing of the roof or part way up the slope. The advantage of this is, that the upper rooms which go partly into the roof are rendered inconvenient and unsightly by a low sloping ceiling to half the room, and that above the ceiling joists is a dark cavern between them and the roof, into which no one ever sees, and where dirt may accumulate and vermin may breed undisturbed. It is really an almost alarming thought to reflect what is the probable cubic contents of these dark caverns in the roofs of houses over all London. If it be thought necessary to go on building sloping roofs, either the whole slope of the roof should be thrown into the top rooms, as the visible ceiling, or the ceiling of the highest living rooms should be at the level of the roof springing, and the space between that and the rafters should be treated as storage space easily accessible and sufficiently lighted to be readily examined from time to time. But, in fact, it is entirely unnecessary, in these days of iron, and

concrete, and tile, that we should build sloping roofs at all ; the doing so is a mere superstition, except where reasons of architectural effect are concerned ; and certainly architectural effect does not concern itself much in the ordinary house roof. With flat roofs with a cement finish and sufficient fall to run the rain to the gutters, we should get rid at once of all these dark caverns, the exterior and interior of the roof would coincide in shape, and convenience and healthfulness would be alike consulted.

The whole tribe of things called “ skirtings ” and “ casings ” are superstitions of the same kind, for providing dark inaccessible places where no cleansing hand can ever come. Baths and water-closet basins are surrounded with those foolish fences of joinery ; white sepulchres, which indeed appear neat outwardly, but within they are full of—no one knows what, for no one ever looks. Let both water-closet and bath stand open to inspection all round, instead of being cased in. In the matter of the bath, the money spent on panelled casing and “ polished baywood or mahogany top ” would go far to render the bath itself a neat and presentable piece of furniture.

This system of ornamental casing is carried out again in the wooden skirtings which are fixed at the base of the walls of each room. Skirtings may be considered necessary for three reasons—for appearance, for a stop to the plastering, and to prevent chairs and other articles of furniture knocking against and injuring the paper and plaster. But they should be in a solid thickness of wood of no greater projection from the plaster surface than is necessary for their practical object. Unfortunately, it is considered necessary that the larger and more dignified a room is, the larger moulding and the greater projection the skirting should have. As we are not going to the expense of putting down moulded timber 3 inches thick round the room, a moulding of the desired projection is fixed on the top, and a piece of $1\frac{1}{4}$ -inch wood fixed between that and the floor, with a nice hollow space behind. The result is often rendered audible by the scuttering and scrambling of the mice, who are enjoying their gambols in the private corridors which we have obligingly provided for them.

Casings for pipes are, no doubt, necessary, and are generally specified to be screwed on, so as to be removable when re-

quired. They never are removed, or the space behind seen, except when something is wrong with a pipe. They should be hinged, and made with button fasteners, so that they can be opened every day without any trouble. Among other drawbacks, they form a private lift or elevator for the cockroach, who is fond of warmth, and is enticed to ascend along the line of the hot-water pipes. The cockroach is bad enough in the kitchen, but a good deal worse in the bedroom; it is hardly worth while to afford him the luxury of a private passage, heated with hot water, to the upper floors.

The passion for sash-windows in this country leads to the employment of another system of wooden cradling built up round the windows, with hollow inaccessible boxes for the lines and weights, besides (generally speaking) another set of hollow spaces behind the back of the shutter casings. It is perfectly possible to make sash-windows without pulleys and weights in more ways than one, unless when they are very large and heavy. But the casement window has the advantage that it can be hung in solid frames without any of this bandbox work round it, and making it weather-tight is merely a matter of care and scientific construction. It is worth consideration whether we should not do better to return to it as the more wholesome and sensible structure of the two.

Another curious superstition is, that windows must have curtains. The recognized principle seems to be to make windows much larger than is necessary to light the room, and then to stop out a great deal of the light by hanging curtains over them. This seems hardly either sensible or sanitary. Curtains are terrible collectors of dust and dirt. Every one knows that a curtain that has been up three weeks in London is hardly fit to touch; and is there any reason, in the nature of things, why windows must have these draperies? Suppose we tried smaller windows, and a more decorative treatment of the frames and glazing, and left them unencumbered by curtains. We should get as much light in a more healthy and sensible, perhaps even in a more decorative manner. Think of the treatment of windows in Oriental houses at Cairo and elsewhere. That could not be copied for this duller climate, nor are copies desirable; but it may afford a hint for decorative treatment of somewhat similar type.

Wall-paper is a simple and inexpensive means of producing decorative effect in a room, but papers should be close in texture and smooth in surface. Papers with embossed surfaces, and, above all, what are called "flock" papers, are dust-holders, and such wall surfaces cannot be kept properly clean. Colored plaster, finished with a hard surface, is more sanitary than any paper, considering that the paper has a layer of paste behind it which becomes rotten in time. If, however, papers are renewed often enough, and the plaster stripped and well scoured at each renewal, the insanitary element in them is not of sufficient importance to counter-balance the decorative gain.

Large and deep plaster mouldings and decorations are now, fortunately, going out of fashion on æsthetic grounds; they are injurious to the cleanly condition of a house, affording so many pockets for the lodgment of dirt. As long as they are kept flat and in low relief, there is no harm in them. The wooden mouldings with a hollow on the top, which are now much used to take picture-hooks, are objectionable, as the hollow is always full of dust. The old brass picture-rods are preferable in this respect.

Furniture, which is a kind of minor architecture, has its superstitions of construction, the worst of which is the system of finishing large wardrobes, book-cases, etc., with a cornice standing up all round the top, leaving a wide pit for dust, which is never seen, and cannot be swept. This cornice is a mere fashion, utterly useless and absurd. The top should be made level or, still better, sloping, and with no raised ledge above it, so that it can be swept. It is the best of all to make large erections of this kind as fixtures carried up to the ceiling, and finished with a moulding against the ceiling; then there is no place where dust can accumulate.

The last superstition I will mention concerns that important receptacle—the cistern. It might be supposed that the reservoir where we store our water for drinking, washing and cooking, would be an object of some interest to the householder; that he would desire always to see and know that it is pure and clean. But it is a superstition that the cistern must not be seen; it is kept in the dark, and generally in a place which is very difficult to get at. When it is supposed that it must

want cleaning, it is a business of engaging a man specially, who, perhaps, has to bring a ladder to get to it. I knew a case where the water in the house began to have an evil taste, and it was found that a dead bird had been in the cistern for many days in an advanced state of putrefaction. The cistern should be in a well-lighted place, where it can be easily seen every day. The best way would be to make it as an aquarium tank is made, with a front of plate glass, so that you can see the light through the water.

To keep a town house thoroughly clean is a continual fight, not only against accumulation of dirt, but against vermin. I remember one case where a nobleman who had become tenant of a house in one of the best terraces in London, at a very large rental, brought an action for compensation against the landlord because the house was found to be full of unmentionable insects from top to bottom. This was an exceptional case, and argued great neglect on the part of some one ; but it is a fact that the chances are far greater for this sort of pest in houses built with hollow floors, and a great deal of woodwork, than they would be with solid floors and skirtings without recesses behind them. Generally speaking, the clean and healthful condition of town houses is greatly assisted by the use of non-porous materials, as far as possible, and the avoidance of all dark and inaccessible corners. The present system of building town houses is exceedingly faulty in these respects, is capable of radical improvement, and should be improved accordingly.

In the discussion which followed, Mr. H. H. Collins said he was of the opinion that the paper they had just heard read was full of practical suggestions. It was just such a paper as should be presented in that section. There were many practical points in it which architects, not for the first time, had had lucidly put before them. With regard to solid floor, there were other materials besides iron and concrete that might be used. Among those that might be mentioned were terra-cotta and coke-breeze. One point alluded to was worthy of special consideration. In Captain Shaw's book it had been shown that wood was not the inflammable material it was generally supposed to be. Instead of being the most inflammable of materials, it was in reality one of the safest. It had

been found that beams 12 inches square, after the fiercest fire, stood the ordeal so well, that if peeled they could be used again. A floor had been patented which was composed of solid wood blocks. Such floors were not very expensive, and could be produced for six shillings per yard. With regard to roofs, there were climatic reasons for preferring sloping to flat roofs. In winter flat roofs would retain a great weight of snow. The casement windows recommended by Mr. Statham would be very inconvenient, particularly in small rooms with much furniture in them. He agreed with the paper with regard to skirtings, and he objected to picture-rods. There was a system known of picture-mouldings, which he preferred.

Mr. Charles Lucas (Paris), speaking in French, said the dangers pointed out in Mr. Statham's admirable paper were not the exclusive privilege of England, but were only too well known in France. The dangers of dampness could be met in the larger towns, where damp-proof courses of brick and concrete were often employed. But they had far too many corridors deprived of air; too many alcoves filled up with beds, where no current of air was possible; too many staircases with only the lower portion ventilated. If he had a fault to find with the paper, it was that he considered it chargeable with too great moderation in its condemnation of all the superfluity of hangings and curtains that encumbered the windows of our reception rooms, and prevented the penetration either of light or air. He demanded, with Mr. Statham, more light, more health. The wall-papers furnished a hiding-place for microbes, and as for insects, a lease in Paris had been recently annulled by a magisterial decision, because the existence of one single insect had been proven. French houses were too often deficient of any means of flushing their closets, and great improvement was required in sanitary fittings of lavatories, baths, and closets.

Colonel Prendergast said he should have liked to hear further discussion with regard to solid floors, but met as that section was to deal with sanitary matters, they would, perhaps, do better to try to find out how far block floorings would tell against the efficient ventilation of rooms. If there was a ventilating flue, that flue must produce a current of air, and the instant one did that in went the bundle of rags to stop

the ventilation. On the question of roofs Mr. Statham had done good service. In Italy and in the buildings of ancient Greece, flat roofs were universal. But in this country we were told we had no climate, and, therefore, flat roofs were impracticable. If Mr. Statham could solve that problem he would do a very great service to the community. In concluding, Colonel Prendergast again referred to solid floors, and to the materials of which they might be made. He said he could see no reason why they should not have solid floors made of paper.

Mr. Ralph Nevill, F.R.I.B.A., said they had in Mr. Statham's paper a condemnation of boarded floors, and if the author could get all architects to follow his example he would do them a good service. It was, however, a question of cost. Six shillings a yard did not seem much for a solid floor, but in the great majority of buildings the expense would be the great obstacle to their adoption. An architect could not force the owner of a house to construct on hygienic principles. Only the doctor could force him to listen to that argument. Architects could not conceive how much vermin were hidden in old houses, not only in London but in country places. He had once to inspect a house a hundred years old, and no one could conceive the thousands of fleas, lice, and other vermin which it had harbored in it. In the ordinary boarded floor, the sole object of cleaning up seemed only to be to wash dirt into the cracks of the floor with dirty soap and water. Solid block floors would be difficult to level if laid on breeze, and such floors would, he conceived, require a layer of asphalt to prevent rot. He recommended the French system of beeswaxed floors. It was a great pity we had none in England. Ladies objected to dance on solid floors, and there was the sound difficulty. The experiments made many years ago in this line of investigation by Mr. Thaddeus Hyatt were worthy of attention. The speaker differed from Mr. Statham as to flat roofs, which would be a constant source of trouble. Unless a man were very rich he could not always be having the plumber about, and such an enormous amount of guttering was required with such roofs that they would be continually in want of repairs. Drapery was indispensable, but the speaker agreed with Mr. Statham in condemning picture rails, but they were often now made without a recess behind, which obviated the objection brought against them in the paper.

Mr. J. P. Seddon, F.R.I.B.A., agreed on most points with the paper. Solid floors need be no disadvantage to ventilation. Pipes to convey air should be laid on, passing from the floor through to the fireplace, just as water-pipes were laid on. He was in accord with Mr. Statham in his jeremiad against hollows. Hollow walls were a prejudice. They were intolerable for harboring vermin. A very perfect and cheap wall could be made with two $4\frac{1}{2}$ -inch brick walls, with an inch air space. The inside joints might be left a little open, and the cavity filled in with Portland cement grouting, and the courses might be bonded by a few tie-courses being placed under or over the window. The walls thus become very solid. Hollow walls, like everything that was hollow, were injurious.

Mr. Statham, in answer to the various speakers, said, with regard to concrete floors, he had only mentioned that one method of forming solid floors, because it was the least costly, and that consideration must be kept in view. He did not positively recommend flat roofs, he only suggested them ; but he could not understand how the weight of a flat roof would be more augmented by snow in winter than a sloping roof, the area of which must be greater than that of a flat roof, and on a quarter-pitch roof the snow lay the same as on a flat one. He was acquainted with Hyatt's book, but a reference to Kirkaldy's records would show that the recent patent referred to showed much better results. His paper was not one on ventilation, and, therefore, he would not stay to refer to what had been said by various speakers on that subject.

PREVENTIVE MEDICINE RESPECTING CONSTIPATION.*

By LYMAN BEECHER TODD, M.D.

DESIRING that we keep abreast with this utilitarian age in which we live, when *cui bono* is the watchword of the hour, I purpose to consider a subject which constantly engages

* Read at the Thirty-seventh Annual Meeting of the Kentucky State Medical Society, May, 1892.

your attention ; which severely taxes the skill and therapeutic resources of the physician and often baffles both ; which meets you in your daily round of professional life ; which awaits your coming, and assails you in the houses you enter, when and where relief is asked of you from troubles almost universal and always distressing, to try to prevent and to avert which is the bounden duty and desire of every conscientious physician.

Although in text-books upon your library shelves preventive medicine respecting constipation is not classified among principal diseases, I nevertheless shall venture to call and to consider it a fundamental disease.

The importance of the subject of constipation, acute and chronic, is commensurate with its attendant consequences of discomfiture, pain, distress, and disability. And I take it that the importance of this disorder of constipation and consequences will in your minds be greatly increased when a moment's reflection will remind you that diseases caused directly by constipation demand the services and skill of (1) the general practitioner ; (2) the neurologist ; (3) the laparotomist ; (4) the rectal surgeon ; (5) the dermatologist ; (6) the gynecologist. And I doubt not but, while this enumeration was being made, cases in your own individual practice referred to one or more of these specialists have occurred to the minds of many of you, which confirm and emphasize this important appalling statement. I do not propose to weary you with minute and descriptive detail of the anatomical arrangement and construction, nor of the physiological uses and functions of the portions of the intestinal tube involved in constipation ; with this you became familiar in your student's career, and have become even more so by your observation and experience as physicians and surgeons.

Constipation, as you are aware, is a condition of the bowels in which the evacuations are less frequent, or in less quantity than in health, and may be temporary or habitual. Torpor of the colon is one of the most common systemic conditions of habitual constipation. Habit is one of the most frequent causes of this complaint, arising from the fact that, by means of our individual control over the sphincter ani muscle, nature has endowed us to a considerable extent with the power of

regulating the alvine discharges and of resisting the solicitations of nature at inconvenient seasons, while the bowel, thus habituated to the presence of feculated matter, feels the loss of its healthy stimulation and at length ceases to be excited into action. The rectum, the lowest and largest part of the large intestines, is not constructed to retain anything for an indefinite period, but only to transmit or throw out what descends from the colon into it.

When compelled to retain hardening matter it contracts upon it, rendering it less easy of subsequent removal. At the same time the coats of the walls of the rectum through its mucous membrane will absorb much of the watery material present. The blood becomes poisoned and the disposition of the bowel to empty itself of such impacted and hard masses is gradually lessened, thus establishing a habit of constipation.

The principal causes of constipation are neglect, improper food, sedentary habits, disease.

Symptoms: Headache, dizziness, giddiness, languor, nervous excitability, irritability, nausea, biliousness, eruption of the skin, loss of appetite.

Persons chiefly subject to this disorder are students, writers, professional and business men whose calling necessitates an exhaustive use of nerve force; those of bilious, phlegmatic temperament, whose hepatic and other glands are torpid; women who are closely confined to office work, duty in stores and manufactories, and whose hurrying to time causes neglect of nature's call. Women are more subject to constipation than men and for many and obvious reasons. Women are more careless about answering the calls of nature than men, and yet there are valid reasons why they should exercise greater care.

The mention of persons liable to and subjects of constipation suggests remedies and means of prevention and alleviation thereof. To the studious and to those of sedentary employment, exercise, regular and judicious, in fresh air and proper diet are absolutely required, even if change of occupation and location should become necessary. Lord Palmerston formulated this idea in a very happy manner when he said that he "considered the best thing for the *inside* of a man, especially the bowels, was the *outside* of a horse." This seems impera-

tive when we consider the consequences or neglect thereof—viz., inflammation, prolapse, and paresis of the bowels, creation of piles and hemorrhoids, tendency to produce hernia by straining or forcing an evacuation, intussusception, fissure both in adults and in children under two years.

The collection of hardening material in the intestine which becomes so impacted that urgent measures and painful and dangerous surgical operations are required to remove the same. And from constipation and its attendant evils and distress none are exempt. It respects and spares no age, race, nor class nor condition in life, claiming as its victims those of all years, from the infant in the cradle to decrepit old age. Time and the proprieties of this occasion permit me to touch only the tops of things, and to indicate important points, and to make suggestions which most probably you anticipate and appreciate.

This paper, brief and imperfect as it is, is presented with an abiding conviction that the subject of constipation in relation to, indeed productive of, abnormal and diseased conditions of female organs has not received the attention from physicians which its importance deserves and demands. It is slighted by lecturers in our schools; it is omitted in textbooks; it is crowded out of the journals, and passed by inconsiderately by ourselves.

Röot, in *Southern Medical Record*, calls attention to constipation as a frequent factor in pelvic diseases in women. The habit of constipation is largely due to carelessness, especially in childhood. In the adult female constipation is very frequent, and many of its symptoms point to pelvic disease; pain in the back, pain in the top and back of the head, a feeling of weight in the limbs, dysmenorrhœa and leucorrhœa, subjecting the patient to local treatment, when changes in the mode of life with relief of constipation would restore health. It is also very evident that this disease acts as a most active factor in the production of pelvic disease in women; for where endocervicitis and even retroversion exist, rapid improvement is made as soon as constipation is relieved. Pelvic disease results from constipation through pressure and keeping up a constant condition of sluggishness of the pelvic circulation, amounting practically to a chronic congestion.

Many cases of pelvic disease can be cured by the proper regulation of the bowels, and he cites cases in proof of this statement.

Two years ago there appeared in the London *Lancet* an able and very instructive article upon this subject from the pen of the eminent Sir Alfred B. Garrod. And a late number of the *Archives Kinderheil-Kunde* contained a learned and practical paper covering a wider sphere upon this subject from Professor A. O. Karnitzky. Leucorrhœa is, according to Dr. Louis Bauer, often due solely to constipation, hence clearance of the bowels of their fæcal contents is in many cases the chief and most effective treatment of that troublesome disorder.

Dr. Robert A. Murray read a paper at the recent meeting of the New York Academy of Medicine : When he considered the intimate anatomical connection between the rectum and the genital organs, it would not seem strange that disease in one should cause disease or symptoms in the other.

Constipation, while not exactly a disease, was present in a large proportion of the cases which came under the care of the gynecologist, and was the cause of much trouble. The first symptom present in most cases was pain in the left side over the region of the ovary, then flatulence and constipation. By recalling the anatomical relations, one could rapidly understand why the patient should have the pain in this region. The rectum lay on that side, the ovary and tube were almost in contact with it, constipation gave rise to congestion of the pampiniform plexus and vessels in the neighborhood. To relieve engorgement of these veins it was necessary to empty the rectum. The only apparent solution of posterior displacement in many virgins was pressure during defecation when there existed chronic constipation. Relieve the pressure by correcting the constipation, and the patient ceased to complain. In long-continued obstruction to the pelvic circulation caused by chronic constipation and uterine displacement we found hemorrhoids and an inflamed condition of the lower gut. Cathartics in these cases were likely to cause greater suffering by renewing inflammatory symptoms ; relief would not be experienced until the communication between the genital and portal circulations had been made free : (1) by replacing uterus ; (2) by use of rectal enemata.

In virgins chronic constipation also often caused a dragging and falling sensation in the pelvis, by giving rise to congestion and varicosity of the vaginal and uterine veins, and led in time by such congestion, and by the pressure forward of the distended gut against the vagina, to retroversion and prolapsus. In this condition correction of the retroversion did not give relief, since the starting cause was not retroversion, but rectocele. Cure the chronic constipation and the other symptoms would disappear. He had several cases in which this rectal distension had given rise to slight fissures at the entrance to the vagina, the passage of hard fæces distending the rectum and sphincter, also stretching the vaginal fissures and causing much pain. A cure of the fissures could be effected only by overcoming the constipation.

Remedies beneficial in preventing and relieving acute and chronic constipation are careful, regular, and patient attention to nature's calls. One daily evacuation of the bowels is natural and usually all that is required in the majority of cases. While each one must be a law unto one's self, the demands of nature cannot be disregarded with impunity. It is best to cultivate a habit of such movement at a regular and fixed time—that is, at the most convenient time of each day that is consistent with the calling of the individual. Among the pure drops of wisdom that fall in proverbs from the accumulated experience of ages, none is safer than to keep the head cool, the feet warm, and the bowels open.

Dr. Beer has recently recommended mechanical dilatation of the sphincter and in the treatment of chronic constipation. In practising the manipulations he advises us to proceed gradually, both as regards the duration of the sitting and the amount of force exerted. Attention should be paid during the dilatation to the rhythmical contractions of the sphincter, which are partly provoked by the respiratory movements and partly result from automatic reflex nervous influences. In most cases considerable improvement was manifested even after eight or ten sittings. Although previously large doses of purgatives were required, defecation soon became regular, and small hemorrhoidal nodules disappeared.

Numerous medical and therapeutical agents are employed to great advantage. Drastic cathartics are considered injuri-

ous, but gentle laxatives combining tonicity are rather to be recommended. Enemata, judiciously and regularly administered, have produced most satisfactory results, especially in sluggish alvine functions of infants and young school-girls, among which classes there exists this condition probably more frequently than in almost any other. In such instances the family physician should give to mothers and nurses very plain and positively explicit instructions regarding the distressing consequences of constipation, that they should feel it to be a duty to know that daily evacuation of the bowels should be as regular and as necessary as the taking of daily meals.

Dr. A. O. Karnitzky calls attention to the fact that massage has been but little employed in the constipation of infants, although it removes both this condition and the disease which gives rise to it—that is, atony of the intestines. He has employed this method with success in acute and chronic constipation in new-born and older children, but states that in order to obtain this result it must be used properly and for a sufficient length of time. The technique of massage in children differs in no essential particular from that in adults, although it should be modified in conformity with the position of the digestive organs at various periods of the child's life. Attention should, therefore, be paid to the anatomical position of the stomach and intestines in the new-born, especially on the left side, and to the position of the descending colon and sigmoid flexure. The manipulations need not be practised on the right side, because the main cause of habitual constipation in children is the considerable length of the lower portion of the large intestine, aside from the weak development of the intestinal muscular layer. In the new-born the massage should be employed when the child is nursing, in order to prevent crying and marked tension of the abdominal muscles. The application of massage for as short a time as three minutes frequently gives the desired effect. The sitting should not last more than ten minutes. (*Arch. f. Kinderheil-Kunde.*)

Electricity, promotive of peristaltic action of the intestines in children and adults, has been highly recommended and used with satisfactory results.

Suppositories are safe, convenient, comforting, and satisfactory aperients, particularly where constipation is attended

with piles and hemorrhoids. Many admirable and useful suppositories suited to various conditions and affections of the lower bowel have been furnished, which have proved very beneficial in the hands of our professional brethren, in private, hospital, and infirmary practice. The combination which has given me good results is glycerine, sulphur, nux, and henbane.

Food : As a valuable means of preventing and of relieving constipation, diet should neither be overlooked nor forgotten. Nutritious articles of food should be regularly taken, well cooked and eaten slowly ; a generous and general mixed diet containing sufficient moisture. Also animal food, certain vegetables, but especially fresh, acidulous fruits, in season and out of season.

I thank you, my Fellows of the Kentucky State Medical Society, for your kind and patient attention to this subject. Did I hear you say that it was *homely* ? Rather it surely is a *home-troubling* subject. Probably you said that it was old and trite ; old it may be, but, like truth, it perpetually renews its youth. And I conclude as I began, with direct reference to preventive medicine, and venture to repeat that the alleviation and prevention of acute and chronic constipation is deserving of your fostering care and beneficial efforts—continuous and untiring efforts. More than once have I called your attention to the great importance of preventive medicine as the leading, the vital question of the times, which should receive your most earnest thought and elicit your cordial co-operation.

And on the field of battle which preventive medicine is now and everywhere waging against the ills to which flesh is heir, the banner of preventive constipation is well at the front. Indeed I feel confident, and I do greatly rejoice in this assurance, that when the enthusiastic physician who is ever loyal to the guild, who keeps her escutcheon fair and stainless, who is ever jealous of her honor, shall proudly make mention of her achievements and triumphs for the benefit of suffering humanity, the prevention of constipation will not then be omitted.—*American Practitioner and News*, August 13th, 1892.

SAFE AND PERILOUS OCCUPATIONS.

SOME one has facetiously observed that of all occupations that of the assassin is the most conducive to longevity. Cer-

tain it is that no sooner is a person known to have committed murder than all the safeguards that human ingenuity can devise are thrown around him and everything possible is done to prolong his days on earth in comfort, ease, and even luxury. If the vast sums of money, the valuable time, the brilliant talent, the profound learning, the resistless energy, and the nauseating sympathy now wasted on murderers were applied to improve the sanitary condition of our schools it would be more humane, and the result would be increased health, wisdom, and morality. There were twenty-nine homicides recorded in this city last year, and the number not recorded probably reached up into the hundreds, for there are many here who live by taking human life, and advertise their bloody trade openly in the newspapers ; yet we feel sure that it would be a profitable business venture for any insurance company to issue policies at reduced rates on the lives of this great army of assassins, from the bold and venturesome highwayman to the sneaking and cowardly abortionist.

Among the learned professions, that of pointing the way to heaven keeps its votaries longest on earth, while those who engage in holding others back, or smoothing their path, if go they must, glide swiftly on themselves and soon lose their feeble grip on worldly things ; thus, according to English statistics, the death-rate among physicians, between 25 and 65 years of age, is more than twice that of clergymen of the same age, lawyers keeping about equally distant in the race for immortality between those who preach and those who practice. Of course, it is easy to see why medical men die young : irregular habits, loss of food and sleep, exposure to the extremes of weather, jolting and shaking over rough roads, inhaling microbe-laden dust or the foul air of a close carriage, the constant mental strain of weighing diagnostic symptoms and therapeutic indications with the fear of erring where human lives are at stake, and, last but not least, alas, with many of us, the worry expressly forbidden by the Master according to St. Matthew 6 : 25-34—all these various agencies speed our journey.

Of manual toilers, those whose occupation keeps them outdoors are, with some few exceptions, the longest-lived, the exceptions being due to other causes, as overwork, especially

sudden muscular efforts and strains, liability to accident, and exposure to inhalation of dust and poisonous vapors. Thus, gardeners, farmers, and fishermen are exceptionally long-lived, and sailors would be so but for the poor quality of food, insufficient and frequently bad water, and the cramped-up, damp, dingy sleeping quarters furnished them. In these respects there has been a great improvement of late years, but much remains yet to be done. Jack's riotous living ashore and too often insufficient clothing at sea are also responsible for many of his ailments.

Carpenters and masons, whose work keeps them mostly in cities, where the air is less pure than in the country or at sea, are not as healthy as farmers or fishermen, and painters and plumbers, who are almost constantly exposed to noxious vapors and suffer more or less at all times from chronic poisoning, die comparatively young.

Tailors and shoemakers, who not only live in a foul atmosphere, but also sit all day in such a cramped position that respiration and digestion are interfered with, as well as drapers, wool and cotton workers, cutlers, file-makers, and printers, are liable to phthisis.

Liquor-sellers and hotel waiters are extremely short-lived, their death-rate being respectively two and three quarters and four times as great as that of clergymen.

Railroading and other occupations, requiring one to be more or less constantly on the road, are extra hazardous, not so much because of the accidents to which one is exposed, as because of the continued jarring, the superheated and foul air in the car and severe draughts every time a door or window is opened, and the fine dust which settles not only in the air passages, but almost completely clogs up the pores of the skin, throwing extra work on the kidneys and giving rise to the so-called "railroad kidney." For this reason as well as for the broken sleep and irregular meals, commercial travellers are undesirable life-insurance risks.

To be a capitalist, whether busy or idle, is somewhat risky ; for, besides being a target for dynamite bomb-throwers, if busy, the physical wear and tear and the mental strain and anxiety of speculations will soon shatter both your mind and body, consigning you either to the madhouse or a premature

grave, and, if idle, dissipation or *ennui* are apt to finish you early.

This being a general election year we should fail in our duty to the public if we did not remind our readers that they may also in their official capacity warn the people of the dangers to which the politician is exposed. On this subject we cannot do better than to quote an editorial in the *Medical Press and Circular*, June 22d, 1892 :

“ The excitement associated with an approaching general election possesses a distinctly medical interest, as practitioners all over the country will shortly have another opportunity of ascertaining for themselves. Apart from the surgical injuries and solutions of cutaneous continuity caused by the impact of brickbats and missiles of a similar description, to be treated *sec. art.*, the excitement and the exhausting physical exertions which canvassing and electioneering entail upon the candidate and his chief agents determine tangible proportion of breakdowns. It has often been noticed that the election is barely over before a certain number of the candidates collapse and are forced to retire from active political life. Indeed, one is surprised that life assurance companies do not insert into the conditions of the grant of a policy a saving clause relieving them from all responsibility during the electoral period. Given a mature age and a sturdy determination to succeed, the position of a parliamentary candidate certainly falls within the category of dangerous occupations. The wonder, indeed, is that a larger number do not give way under the strain, but the effects cannot be measured by the immediate mortality. The moment seems opportune to advocate the value of bloodletting in heart failure. Such an operation, carried out on a public platform with promptitude and despatch on a syncopal chairman or lecturer would be enough to secure a popular reputation for the operator, especially if by good luck the victim survived the ordeal.”

Several defeated Presidential candidates have lain down and died shortly after their defeat, and Generals Garfield and Arthur might have been alive to-day had they left politics alone.

From what we have said it follows that if you would enjoy a happy life, as well as a long one, and be prepared to go to a

better place when your time comes, practice not, but rather preach ; spend not your days in houses built by man, but under God's fair sky ; seek not wealth, for " it is easier for a camel to go through the eye of a needle than for a rich man to enter the kingdom of heaven ;" keep the ten commandments and read and *heed* daily the Divine injunction : " Take no thought for your life, what ye shall eat, or what ye shall drink ; nor yet for your body, what ye shall put on."—*Pacific Medical Journal*, August, 1892.

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076 : T. S. Scales, M.D., Health Officer, reports for the month of August a total mortality of 65, of which number 17 were under five years of age, and 37 were colored.

The annual death-rate was 7.80 per 1000. There were 14 deaths from zymotic diseases, and 8 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento, reports :

Mortality reports from 116 cities, towns, villages, and sanitary districts, having an aggregate population of 816,793, show 1014 deaths from all causes during August. This corresponds to a death-rate of 1.24 per 1000, or 14.88 per annum.

There were 120 deaths due to consumption, 39 to pneumonia, 18 to bronchitis, 5 to congestion of the lungs, 22 to diarrhœa and dysentery, 47 to cholera infantum, 51 to other diseases of the stomach and bowels, 39 to diphtheria and croup, 12 to scarlatina, 2 to measles, 8 to whooping-cough, 36 to typhoid-fever, 1 to malarial fevers, 12 to cerebro-spinal-fever, 4 to

erysipelas, 47 to cancer, 95 to diseases of the heart, 8 to alcoholism, and 448 to other causes.

San Francisco, 330,000: J. W. Keeney, M.D., Health Officer, reports: The total number of deaths during the month of August was 450—136 under five years of age, and 29 among the Chinese. The annual death-rate per 1000 was 16.32. There were 86 deaths from zymotic diseases, and 54 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, reports in the *Monthly Bulletin*:

The mortality report for August has been received from 167 towns in the State.

There were 1424 deaths reported during the month. This was 63 less than in July; it was 176 more than in August, 1891, and 138 more than the average number of deaths in August for the five years preceding the present.

There were 624 deaths under five years of age. The death-rate was 21.8 for the large towns and the small towns, and for the whole State. The deaths from zymotic diseases were 586, being 41.4 per cent of the total mortality against 38.6 per cent in June. The deaths from consumption numbered 89.

New Haven, 86,000: F. W. Wright, M.D., reports for the year 1891 as follows: Total deaths from all causes 1677, of which number 471 were under five years of age. Zymotic diseases caused 271 deaths, and consumption, 180.

The death-rate for the year was 19.48 per 1000.

For the month of August there were reported 181 death—90 under five years of age—representing an annual death-rate of 25.25 per 1000. Eighty deaths were from zymotic diseases, and 11 from consumption.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000: C. M. Hammett, M.D., Health Officer.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville, reports in *Florida Health Notes* the following summary for the month of August: Reports received from 23 counties

and 2 cities representing 252,437 aggregate population. Births, 386 ; marriages, 229 ; deaths, 300 ; deaths under five years of age, 125. Annual death-rate per 1000, 14.27.

Cholera infantum caused 17 deaths ; malarial fevers, 29 ; consumption, 16 ; and typhoid-fever, 16.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,400,000 : J. D. Ware, M.D., Commissioner of Health, reports for the month of August 2540 deaths, of which number 1359 were under five years of age.

Annual death-rate per 1000 was 21.77.

From zymotic diseases there were 890 deaths, of which number 179 were from typhoid-fever, and 519 were from diarrhœal diseases ; there were 155 deaths from consumption, and 158 from acute lung diseases.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Evansville, 50,756 : L. Worsham, M.D., reports for August 51 deaths, of which number 21 were under five years of age.

Annual death-rate 12.07 per 1000.

There were 9 deaths from zymotic diseases and 5 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for August as follows :

Burlington, 30,166 : Total deaths, 33. Annual death-rate per 1000, 12.72.

Council Bluffs, 35,000 : Total deaths, 18. Annual death-rate per 1000, 6.60.

Des Moines, 62,000 : Total deaths, 69. Annual death-rate per 1000, 12.12.

Dubuque, 35,000 : Total deaths, 50. Annual death-rate per 1000, 15.30.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored : Deaths in four weeks ending September 10th, 1892, 518, representing an annual death-rate of 26.56 per 1000. Of the total mortality, 200 were colored, and 143 were under the age of five years. 90 deaths were from zymotic causes, and 60 were from consumption.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

The Seventh Annual Report of the State Board of Health for the year ending December 31st, 1891, has been received. There is no report on the mortality and morbidity of the State, nor are there any tables of vital statistics other than the extracts from reports of local health officers throughout the State.

"School Hygiene and School-Houses," by A. G. Young, M.D., the Secretary of the Board, is a valuable contribution to our sanitary literature, and should be read not only by sanitarians and physicians, but by every school-teacher, school-trustee, school-architect, and school-builder ; every member of every board of education and every father and mother who has a child to educate should possess a copy of this treatise ; and every school-janitor should have certain parts of it drilled into him.

Some of the subjects treated of under the title are : Sanitary Conditions of some Schools in Maine and Elsewhere, School Diseases, Infectious Diseases, Personal Hygiene of the Pupil, the Hygiene of Instruction, Physical Culture, School Buildings, the School-Room, Lighting, Desks and Seats, Ventilation, Heating and Ventilation, Privies, Water-Closets and Urinals, School-House Plans. A number of illustrations and a copious index add to the value of the work.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for the month of September, that the total deaths were 741, a decrease of 19, compared with the corresponding month of September, 1891. Of these 589 were whites and 152 colored ; a death-rate of 18.40 per 1000 for the former and 25.69 per 1000 for the latter. The death-rate per 1000 for the whole

population was 19.54. 29 died from infectious diseases, 78 from consumption, 40 from pneumonia, 37 from cholera infantum, 15 from enterocolitis, 11 from diarrhœa, 15 from dysentery, and 26 from typhoid-fever. 314, or 42.37 per cent of the total deaths, were in children under five years of age.

During the month 103 cases of infectious diseases were reported, a decrease of 34 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 1014 deaths reported in August, of which number 496 were under five years of age. The annual death-rate per 1000 was 25.9. There were 312 deaths from zymotic diseases, and 106 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of September, 1892, compared with the preceding month, the reports indicate that scarlet-fever, diphtheria, pneumonia, dysentery, erysipelas, inflammation of brain, and typho-malarial-fever increased, and that puerperal-fever, cerebro-spinal meningitis, measles, influenza, and inflammation of kidney decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was southwest (instead of north), the velocity was greater, the temperature was lower, the rainfall at Lansing was .46 of an inch less, the absolute humidity was less, the relative humidity was slightly more, the day and the night ozone were much less, and the depth of ground above the water in the well at Lansing was three inches more.

Compared with the average for the month of September in the six years 1886-91, scarlet-fever was more prevalent, and small-pox, puerperal-fever, measles, cerebro-spinal meningitis, typho-malarial-fever, erysipelas, and intermittent-fever were less prevalent in September, 1892.

For the month of September, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was southwest (instead of southeast and easterly), the velocity was less, the temperature was higher, the rainfall at Lansing was .24 of an inch less, the absolute and the relative humidity were more, the day and

the night ozone were much less, and the height of ground above the water in the well at Lansing was the same.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of September, 1892, at forty-two places; scarlet-fever, sixty-six; typhoid-fever, one hundred and ten; measles, three places, and one death in Royalton township from suspected cholera.

Reports from all sources show diphtheria reported at six places less; scarlet-fever the same number of places; typhoid-fever at twenty-four places more, and measles at eight places less in the month of September, 1892, than in the preceding month.

Detroit, 230,000: S. P. Duffield, M.D., Health Officer, reports for the month of August 458 deaths, of which number 118 were under five years of age. The annual death-rate was 23.43 per 1000. The deaths from zymotic diseases numbered 201, and from consumption, 23.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing. The mortality for the month of August was 846 from all causes, in a total population of 1,301,826.

There were from tuberculosis, 71 deaths; from diphtheria and croup, 26; from pneumonia, 12; from bronchitis, 8; from enteric-fever, 20; from scarlatina, 10; from whooping-cough, 14; from measles, 1; from diarrhoeal diseases of children, 247; and from influenza, 3. The annual death-rate per 1000 was 8.66.

St. Paul, 150,000: H. F. Hoyt, M.D., Commissioner of Health, reports for the month of August 181 deaths, of which number 115 were under five years of age. Annual death-rate per 1000, 14.41. Zymotic diseases caused 65 deaths, and consumption, 12.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716: E. R. Lewis, M.D., Sanitary Superintendent, reports that there were 152 deaths during the month of August, of which number 65 were under five years of age. Annual death-rate per 1000, 13.7. Zymotic diseases caused 35 deaths, and consumption, 16.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Paterson, 85,386: J. L. Leal, M.D., reports for August 190 deaths, of which number 100 were under five years of age. The annual death-rate was 26.7. There were 62 deaths from zymotic diseases, and 19 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports that the mortality for August has fallen from an average of 437 deaths per day in July to 352, which is about the same as that of last August; there were 2500 fewer deaths than in July. One half of this diminution is in diarrhœal diseases, from which there was an excessively large number of deaths last month. Typhoid-fever increased by 50 deaths, which is no more than is customary. Scarlet-fever continues to show a lessening mortality, and from measles, which has been increasingly prevalent for a time, the mortality is one third that of July. Diphtheria caused fewer deaths. There were 26 deaths from small-pox, one of which occurred in Westchester; the remainder in New York and vicinity. From all zymotic diseases the proportion of deaths was 29 per cent of the total mortality, in July being 34 per cent. The infant mortality was 45 per cent, having been 52 per cent in July. Of the 10,900 deaths reported, 9000 occurred in 145 cities, villages and large towns, which having an aggregate population of 4,643,000, gives an annual death-rate per 1000 of 23.10, that of the remaining (rural) portion of the State being 19.10, and of the entire State reporting 22.14. In the rural portion of the State there were 0.34 deaths per 1000 population from zymotic diseases for the month, 0.23 being from diarrhœal diseases, 00.3 from diphtheria, and 00.24 from typhoid-fever. In the urban portion of the State there were 0.60 zymotic deaths per 1000 population for the month, and 0.44 from diarrhœal diseases, 00.52 from diphtheria, and 00.33 from typhoid-fever. There were 210 deaths from consumption, in 1,170,724 rural population, and 846 in 4,643,000 urban population, the proportion being nearly the same. Of cholera, to

September 24th, there were within the city limits of New York 8 sporadic cases and 6 deaths, the first occurring September 6th, no cases existing at the date mentioned; 22 deaths occurred in the port, which is free from the disease at this issue.

New York, 1,801,739: Total deaths, 3510—1695 under five years. Death-rate, 22.92. Zymotic diseases per 1000 deaths from all causes, 283.76. Deaths from consumption, 362.

Brooklyn, 957,163: Total deaths, 1953—1078 under five years. Death-rate, 24.00. Zymotic diseases per 1000 deaths from all causes, 310.71. Deaths from consumption, 157.

Albany, 97,120: Total deaths, 197—71 under five years. Death-rate, 24.20. Zymotic diseases per 1000 deaths from all causes, 300. From consumption, 23.

Syracuse, 91,944: Total deaths, 193—80 under five years. Death-rate, 25.18. Zymotic diseases per 1000 deaths from all causes, 285. From consumption, 30.

Buffalo, 278,796: Total deaths, 712—462 under five years. Death-rate, 30.10. Zymotic diseases per 1000 deaths from all causes, 400. From consumption, 49.

Rochester, 144,834: Total deaths, 259—138 under five years. Death-rate, 21.40. Zymotic diseases per 1000 deaths from all causes, 396.50. From consumption, 22.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of August 147 deaths, in sixteen towns aggregating 82,100 inhabitants. Of this number 61 were under five years of age. The annual death-rate was 21.5 per 1000.

Typhoid-fever caused 19 deaths; diarrhœal diseases, 27; heart diseases, 9; brain diseases, 5; malarial fever, 7; and consumption, 12.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Cincinnati, 300,000: J. W. Prendergast, M.D., Health Officer, reports for the month of August 410 deaths, of which

number 160 were under five years of age. The annual death-rate was 16.13 per 1000. There were 81 deaths from zymotic diseases, and 46 from consumption.

Columbus, 101,945 : Lee McBriar, M.D., Health Officer, reports for the month of August 122 deaths, of which number 40 were under five years of age. The annual death-rate was 14.16 per 1000. There were 28 deaths from zymotic diseases, and 14 from consumption.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer, reports :

In the four weeks ending September 24th, 1892, there were 1657 deaths, of which number 720 were under five years of age. Annual death-rate, 19.8 per 1000. Deaths from consumption numbered 202, and from zymotic diseases, 369.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the four weeks ending September 24th, 1892, there were 420 deaths, of which 226 were under five years of age. Annual death-rate, 21.39 per 1000. Zymotic diseases caused 141 deaths, and consumption, 25.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence.

The number of deaths recorded in the different towns and cities, from which returns have been received, was 654, in an estimated population of 290,140. The annual death-rate upon the estimate given is 27.0 in every 1000 of the population.

The death-rate is rather larger than for the previous month, and the general sickness throughout the State was reported as rather larger.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of August were : Malarial-fever, typhoid-fever, dysentery, diarrhœa, consumption, cholera infantum, whooping-cough, diphtheria, scarlet-fever, and croup.

Typhoid-fever was reported in the counties of Anderson, Davidson, Franklin, Greene, Hamilton, Hawkins, Henderson, Hickman, Houston, Humphreys, Knox, Montgomery, Roane, Rutherford, Shelby, Sullivan, and Williamson ; consumption in Davidson, Hamilton, Henderson, Knox, Maury, Montgomery, Rutherford, and Shelby ; whooping-cough in Davidson, Gibson, Humphreys, Maury, McNairy, Rutherford, and Williamson ; diphtheria in Davidson, Hamilton, Knox, McMinn, McNairy, and Shelby ; scarlet-fever in Davidson, Knox, Montgomery, Shelby, and Tipton ; croup in Knox, Shelby, and Sullivan.

Chattanooga, 25,000 white and 15,000 colored : Total deaths in August, 53—31 of which were colored, and 25 under five years of age. Annual death-rates, 9.76 for the white population, and 28.6 for the colored, per 1000.

Knoxville, 31,273 white, and 9112 colored : Total deaths in August, 50—13 of which were colored, and 25 under five years of age. Annual death-rates, 14.19 white, and 17.11 colored, per 1000.

Memphis, 33,800 white, and 27,700 colored : Total deaths in August, 103—50 of which were colored, and 32 under five years of age. Annual death-rates, 18.81 white, and 21.66 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths in August, 152—71 of which were colored, and 51 under five years of age. Annual death-rates, 17.79 white, and 25.69 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 246,000: U. O. B. Wingate, M.D., Health Officer, reports for the month of August 413 deaths, of which number 271 were under five years of age. Annual death-rate, 20.15 per 1000.

From zymotic diseases there were 300 deaths, and from consumption, 24.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885: Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of July, 1892, shows that there was a total mortality of 1349, of which number 686 were of children under five years of age. From infectious and contagious diseases there were 131 deaths; from pneumonia, 165; from meningitis, 47; from gastro-enteritis, 25; still-births, 107.

UNSANITARY CONDITION OF HAVANA.—The Proceedings of the Florida Medical Association,* a pamphlet of 127 pages, contains, besides several papers on practical medicine of importance, a note on the unsanitary condition of Havana, of which the following is an abstract:

Our city occupies a peninsula, formed by the Gulf of Mexico on the north and in jutting of our bay or harbor on the east and south, terminating on that side in various lagoons and lowlands, through which several creeks meander and enter the bay in its shallow margins. Our slaughter-houses on one of these pours its blood and offal into these sloughs.

In its topography, its streets have not been constructed to regular grades, but have followed the original surface in various altitudes. A large proportion of our streets are yet unpaved, and in the poorer wards it is a common custom to throw slop water into the streets, where it frequently forms stagnant pools that fester in the sun and exhale noxious vapors.

A clayey subsoil underlies its surface, and its habitations,

* Session of 1892, at Key West, April 5th-8th, J. D. Fernandez, M.D., Secretary, Jacksonville, Fla.

without cellars, are in direct contact with its undrained, humid soil, without damp courses to protect their walls from moisture, and these are regularly saturated and discolored with it five or six feet above the ground floors.

The city has no system of sewers, and the night soil is almost universally accumulated within the rear part of the houses in the old midden closet, which is simply a hole in the ground, mostly without lining, and consequently its bottom and sides are permeable by the filth, and which, dissolved by the house slops and other domestic waters, soaks into the ground farther and farther, until the entire foundations of the houses are reeking and pestilent with these organic infusions, undergoing putrid fermentations and exhaling their death-dealing gases and microbes within all the habitations. Moreover, these pestilential closets are usually adjoining the kitchens, and in near proximity to the sleeping apartments, which, in the houses of the poorer classes, are very imperfectly ventilated, and it is an inveterate custom of the people to close them persistently on the first approach of sickness, and particularly of febrile symptoms, heedless of professional advice to the contrary.

Along the harbor side of the city, wooden wharves are built upon piles, and several of the streets that descend to the bay have, loosely constructed with flat stones or bricks and lime mortar, square drains of one foot, more or less, in size, and connecting their houses with them by similar conduits of smaller size, have set water-closets, and in this way, during many years, these conduits—by many called “sewers”—have been accumulating deposits of sewage, less than three feet under the surface of the streets, distributing their infiltrations, and pouring out some portions of them into the bay, which accumulate as pestilential mud under the wharves.

Thus our population, familiarized with this state of uncleanness, are exceedingly careless in their methods of collecting their garbage, and, possessing no public urinals, all these organic materials are spread about, and our abundant rains, at certain seasons, wash them into the low belt along the harbor.

I have copied brief mortuary statistics of some of the affections that produce the highest death-rates here, as follows :

Out of our population of 200,000, I select the statistics of ten diseases that produced highest death-rates in Havana in 1890 and 1891, in the order of their death-rates, respectively : Pulmonary tuberculosis, 1375, 1384 ; lesions of heart and aorta, 633, 654 ; enteritis, 784, 579 ; pneumonia and bronchitis, 451, 429 ; yellow-fever, 340, 349 ; cerebral congestion and hemorrhage, 306, 291 ; meningitis, 298, 238 ; liver affections, 215, 197 ; pernicious fever, 164, 185 ; typhoid-fever, 223, 172 ; small-pox, 12, 151.

From defective methods of collecting mortuary statistics here our registrations are incomplete. It is the general conviction that the annual death-rate is about forty.

ERASTUS WILSON, M.D.,

Prado 115, Habana.

MEMENTO TO SIR GEORGE BUCHANAN, F.R.S.

SIR GEORGE BUCHANAN has lately resigned the post of Medical Officer of the Local Government Board, London. A committee has been formed with a view to forwarding a movement for enabling those interested in Public Health throughout the British Empire and this country, to give expression to the high estimation in which they hold the important work which Sir George Buchanan has done, and for affording some opportunity for the recognition of his conspicuous services in the cause of preventive medicine. It has been decided to open a subscription list (not to exceed two guineas from each contributor) with a view to presenting to Sir George Buchanan some permanent memento of the esteem in which he and his work are held.

W. H. HAMER, Ladywell, 69, Dartmouth Park Hill, London,
N. W.,

J. C. THRESH, The Limes, Chelmsford, Essex,

Honorable Secretaries.

Persons desiring to subscribe to the proposed memorial can send the contribution direct to either one of the honorable Secretaries, or to Dr. JOHN S. BILLINGS, Army Medical Museum and Library, Washington, D. C., who has been authorized to collect funds for the purpose in the United States.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

INDUCED VOMITING AND THE ANTI-EMETIC ACTION OF MENTHOL, was the subject of a communication from M. Blondel to the Société de Thérapeutique, at a recent meeting, upon which and the discussion thereon, *Le Progrès Médicale* reports, as follows :

According to M. Blondel, the phenomenon of vomiting is very complex, and it is difficult to understand in what way it is prevented by menthol. At the beginning of the act of vomiting there must be a certain disturbance of the stomach which, by reflex action, is carried to the bulb and thus leads to vomiting. At other times it may be produced by a spasm of the diaphragm which acts on the stomach in consequence of extraneous action. Ipecac produces reflex nausea by its irritating action on the stomach. The anti-emetics are all stimulants of the stomach, like carbonic acid and menthol. The explanation of these apparently contradictory facts is difficult. On other mucous surfaces carbonic acid is an irritant. It is probable that in order to induce vomiting it is necessary that the muscular fibres of the cardiac orifice be in a relaxed condition, and that the anti-emetics exert a stimulant action on the muscular fibres of that region. In fine, the vomiting is always due to a spasmodic action of the diaphragm, whether it be spontaneous or reflex. Anti-emetic medicines contract the fibres of the cardiac orifice and prevent the expulsion of the contents of the stomach. Menthol effectually stops the vomiting caused by ipecac ; and I have been able by this means to prevent vomiting while treating pneumonia and dysentery with ipecac.

M. Chatillon.—Menthol has been used as a local sedative ; it is employed in affections of the nose and pharynx as an anæsthetic.

M. Guelpa.—I have seen menthol given in laryngeal affections as a caustic, and M. Gougenheim uses cocaine to spray the larynx before using the menthol.

M. C. Paul.—Does menthol quiet the uncontrollable vomiting of pregnant women and of patients with tuberculosis ?

M. Blondel.—My intention was to show that there were two kinds of vomiting: one arising from the stomach itself; the other from causes exterior to it.

M. C. Paul.—No one knows where the origin of reflex vomiting is to be found; I wish to draw out some information from a clinical point of view. When the vapor of menthol is inhaled a sensation of relief is experienced in the trachea and the large air passages. I do not think that menthol is an anæsthetic. In cases of tuberculosis I have tried menthol to stop the vomiting which is usually brought on by the cough, but I have never succeeded.

POTABLE BEVERAGES was a subject brought up in the report of the Society, on which M. Dujardin-Beaumetz remarked that what now disquiets the members of the Conseil d'hygiène is the quality of the water with which Seltzer is made. We have asked that the inspection be made with great care, in order to be certain that the water used for that purpose is pure and filtered; and we find that carbonic acid is the only thing now used in the manufacture of seidlitz-water. Finally, the syphons are now so made that the water is not in contact with the lead coupling. *In proportion as seltzer becomes old, the number of microbes diminishes by the action of the carbonic acid gas; but the reverse takes place when we use ordinary water.*

M. Bardet.—In the great majority of the establishments for the manufacture of mineral waters containing carbonic acid gas, they collect the gas which escapes from the tanks and use it for the manufacture of seidlitz water. This is done at Sail-sous-Couzan. It appears that even in restaurants the ordinary table waters are adulterated.

M. Dujardin-Beaumetz.—There are great numbers of natural mineral waters which are subsequently charged with carbonic acid gas, such as Apollinaris and the water of Chantilly. The Academy has done wrong in authorizing the use of these waters, and in allowing them to take the title of natural mineral waters.

A physician has suggested the idea of making "limonade lactique" charged with carbonic acid gas. At the Comité d'hygiène we prefer water which has been boiled to that

which is filtered. If the filter is imperfect, or if the best of them have fissures, the people labor under a false security which is far more dangerous in its results than that which comes from the use of the water of the Seine.

FILTERS—even the best—are, according to M. Dujardin-Beaumetz, of no use whatever, and thus another cherished illusion is likely to disappear. The only safe way to preserve drinking water from microbes is to boil it, as this is the only practical way to effectually sterilize it. All filters become soiled, in time, and allow microbes which are very small and very dangerous to pass through them.

INJECTIONS of all kinds we have decidedly encouraged, says the *Gazette Hebdomadaire* ; after having used and even abused medicinal injections, we have now to employ them to destroy microbes and virulent poisons of all kinds in the system, and they seem destined to prevent a great number of diseases, and even to cure them. Doctors who are anxious for notoriety exclaim : Inject ! always inject ! Something will result from it.

A PROPHYLACTIC which he calls *antiphlogose*, has been discovered by M. Gamalea, a substance which previously injected renders the animal less disposed to inflammatory action from local disturbance of microbic or chemical origin.

THE IMMEDIATE REPAIR OF LOSS OF INTRA-OSSEOUS SUBSTANCE BY THE AID OF ASEPTIC AGENTS, was the subject of a recent communication addressed to the Academy of Sciences, by MM. Simon Duplay and Maurice Cazin. These experimenters give artificial support to the osseous tissue which is to be formed on iodoformed gauze of cotton, silk, catgut, or sponge, all of which must be perfectly sterilized. The tissues should be accurately brought together by suture, and these inert substances enclosed within the cavity in which the new bone is to be formed. Numerous experiments on animals have shown that the bony tissue of new formation penetrated quite rapidly all the areoles of the sponge.

In pathological conditions in man, one of the great difficulties of the operation consists in securing the aseptic quality

of the cavity in which the diseased bone which has been thrown off is found. The instances of osseous regeneration are not numerous, but they exist.

LISTERINE AS AN ANTISEPTIC.—Dr. A. Martinez Vargas, Physician to the General Charity Hospitals of Madrid, Professor of Infantile Diseases, etc., under date of August 6th, 1892, writes that

“For two years I have frequently employed Listerine in external and internal operations without having failed to obtain its antiseptic effect. On account of its agreeable odor and the sensation of freshness that follows its use, it is a topical application that cannot be surpassed in nasal and guttural affections, and in running from the ears that is so common among children and so offensive on account of its fetid smell. In a case of hay-fever or spasmodic rhino-bronchitis, the intensity of the attacks of sneezing was diminished by treating the naso-pharynx with the Listerine diluted, and stopping up the nostril with cotton soaked in the pure Listerine. Its antiseptic properties, demonstrated as they are, and combined with these its aromatic quality, Listerine may be elevated to the first rank as the preferable liquid for the disinfection of the hands, face, and mouth when there exists any danger of contagion from diphtheria or any similar affection. On account of its freedom from toxic and caustic properties it may be used as a domestic antiseptic, and utilized for external applications and to meet certain necessities where an antiseptic is required in intestinal disorders.”

THE EDITORS OF THE SANITARIAN, who have been in the habitual use of Listerine in like disorders to those named by Dr. VARGAS, for more than twice two years, agree with him in his favorable opinion of it.

USES OF THE COAL-TAR DERIVATIVES—In a communication read before the Mitchell District Medical Society, July 14th, 1892, and reported in the *Indiana Medical Journal* for August, Dr. C. W. Murphy of Salem, Ind., presents the results of varied trials of products of the aromatic series. He found that phenacetine was especially useful in hemicrania,

and could be depended upon for the certain relief of hyperæmic headache. He also used phenacetine in a number of cases of whooping-cough, in which, as he states, it serves a useful purpose in diminishing the severity and frequency of the paroxysms of coughing. He refers also to its usefulness in the treatment of *la grippe*, in which condition it reduces the fever and relieves the severe muscular and neuralgic pains. Dr. Murphy finds that while antipyretic remedies have no specific effect upon the causes of fever, they serve a very useful purpose in the treatment of all pyrexias, a fact which, as he states, will not be denied by those who have given them an extended trial. In his belief they lower temperature by increasing the radiation of heat from the body, and diminishing heat production.

OVER-PRESSURE IN CHILDREN CAUSING BRAIN MISCHIEF, is the subject of a recent article (*Hospital Gazette*), by Dr. J. A. Diggle, London, showing the inadvisability of attempting to force children forward in schools without sufficiently considering their different individual capacity for learning.

In the ordinary Board School, as at present constituted, every child in each standard must be pushed on, *pari passu*, with all the others, so as to get all, if possible, passed at the examination next ensuing, into the standard above. In the first case here noted, the fault, *fons et origo mali*, was with the parents in sending such a young child to school at all, but as both parents were factory workers, and there was only a slightly older boy besides, the child went to school with him.

Case 1. Alf. C., a sharp and more than usually intelligent little boy, of only four years and eight months, was seized on April 3d, at breakfast time, with sickness and pain in the head. He had been attending school for six months, and being naturally quick, as I have said, he had been encouraged to learn, and had already reached the final class in the Infant Department, and would have been put into the general school but for his age, which forbade it.

Here follows the treatment through a severe illness, but which finally resulted in recovery by the use of cold applications to the head and the sedative effects of Battle's bromidia, after the failure of other hypnotics.

Case 2. Jno. B., a strong, sturdy, rough lad of just over seven years of age, was a contrast to A. C., in that he was anything but fond of lessons, and rather dull in all subjects except drawing, in which he excelled.

He had failed last year in the examination, and in consequence his teacher had been urgent as to the necessity of his passing this time, and had been, perhaps, rather too sharp on the lad.

Just a fortnight before the examination, on April 21st, he was seized, also at breakfast time, with vomiting and pain in the head.

When I saw him in the forenoon he was lying on a bed-chair, very drowsy, and resenting being roused. Had vomited every few minutes since breakfast, at which he had only drunk a cupful of coffee. Head very hot. Pupils contracted ; buries his face in the pillow. Temperature, 100° .

Ordered cold water cloths to head until ice-bladder could be got, and a potass. citrat. mixture.

April 22d. Sickness relieved. No delirium, but wanders when roused, and talks of his play. Ice to head. Bromidia every two hours. Night much the same. Temperature, 100° .

And here follows the treatment from day to day, as in Case I, until April 26th, when he was convalescent. The Doctor adds in conclusion :

It seems curious to me that two lads of such opposite temperaments should be so similarly attacked. One sharp and intelligent, though very young and not compelled to learn ; the other older and duller, probably harassed by his teacher, and yet both develop almost the same symptoms. I may say that the younger child, a fortnight after I ceased seeing him, had a regular hysterical fit because his mother would not allow him to go to school with his brother, and was in a state of collapse, cold and pale, for two or three hours after.

The rapid improvement under the ice and bromidia treatment was very gratifying, and I have found bromidia especially useful in such cases, and a very reliable hypnotic whenever I have required to prescribe such a medicine."

EDITOR'S TABLE.

✉ ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

CHOLERA AND QUARANTINE.

CHOLERA DISPOSAL AT THE PORT OF NEW YORK, 1892, FROM THE ARRIVAL OF THE FIRST INFECTED SHIP, THE *MORAVIA*, AUGUST 31ST, TO THE LAST, THE *BOHEMIA*, OCTOBER 16TH.

SHIPS.	TRANSFERRED TO SWIN- BURNE HOSPITAL.			DEATHS.							Cre- mated at Swin- burne
	With Asphyctic Chol- era.	With light Cholera	Sus- pects.	At Sea.	At Swin- burne Hos- pital.		From Chol- era on Board	From other causes on Board	Total.		
					From Chol- era.	From other causes					
Moravia.....				22			1	2	25	3	
Normannia.....	12	6	18	5	6		6	1	18	13	
Rugia.....	23		19	4	8		4		16	12	
Wyoming.....	1		4		1	1	2	2	6	6	
Scandia.....	19	2	17	32	1	2	7	2	44	12	
Heligoland.....				2					2		
Bohemia.....	17		1	11	4	1	4	1	21	10	
Totals.....	72	8	59	76	20*	4	24	8	132	56	

J. M. BYRON, M.D.,

Physician of Swinburne Hospital, Quarantine.

WILLIAM T. JENKINS, M.D.,

Health Officer, Port of New York.

October 22, 1892.

HEALTH DEPARTMENT, NEW YORK, October 18, 1892.

DR. A. N. BELL, EDITOR SANITARIAN :

According to your request, I enclose a list of the fatal cases of cholera in New York City during the present year to this date. There have been no cases of cholera among the immigrants that passed Quarantine, and no connection has been made between the persons who were reported to have died from this disease in this city and any of the immigrants from

* It should be observed that out of these twenty deaths from cholera six died within two hours after admission to the hospital.

the infected vessels, except, perhaps, John Knox, a stoker on the steamship *Nevada*, who died on board the vessel at her pier, foot of West Twenty-first Street, although untiring efforts have been made to obtain as complete a history as was possible in each case.

J. T. NAGLE, M.D.,
Register of Vital Statistics.

DEATHS FROM ASIATIC CHOLERA REPORTED TO HAVE OCCURRED IN NEW YORK CITY.

NAME.	Age.	Date of Death.	Nativity.	Time of Residence in New York City.	Occupation.	Place of Death.
	Yrs. m. d.					
Charles McAvoy....	35	Sept. 6, 1892	Ireland.	9 years.	Laborer.	879 10th Ave.
Wm. Weigmann....	52 2 14	" 10, "	Germany.	32 years.	Butcher.	768 11th Ave.
Peter Callaghan....	30 0 0	" 10, "	Ireland.	7 months.	Laborer.	318 E. 47th St.
Minnie Levinger...	1 8 10	" 11, "	New York.	Life.	"	411 E. 46th St.
Sophia Weigmann...	63 4 9	" 11, "	Germany.	32 years.	Domestic.	768 11th Ave.
Charlotte Beck.....	30 9 0	" 13, "	"	11 years.	"	1764 2d Ave.
John Knox.	41 0 0	" 18, "	Ireland.	3 days.	Stoker.	S. S. Nevada, 21st St., N. R.
Louis Weinhausen...	54 0 0	" 23, "	Germany.	34 years.	Coachman.	14 1st St.
Joseph Müller.....	47 0 0	" 29, "	"	25 years.	Grocer.	255 W. 29th St.

For a full description of the New York Quarantine establishment the reader is referred to the first volume of *THE SANITARIAN*, 1872, illustrated with plans of the structures and a chart of the Lower Bay of New York. But for those who may not have this reference at hand, it will suffice for the present occasion to state that its chief portion is bounded by two artificial islands in the Lower Bay of New York, one mile apart and about two miles distant from the nearest shore; one about two acres in area, upon which the Swinburne Hospital and appurtenances are erected; and the other, Hoffman Island, of nearly three acres in area, upon which are erected the buildings for the detention of well persons during the period of incubation, and the steam-disinfecting plant. The Health Officer's residence is on a bluff of the Staten Island Shore of the Narrows, three miles further up than the Island structures, and commands a full view of both the Upper and Lower Bays. The Anchorage ground for infected vessels is in the Lower Bay, from two to three miles below the Hospital, sufficiently off from the main channel to be out of all possible danger to passing vessels.

Briefly summed up, the New York Quarantine establishment is adapted to the cardinal conditions of quarantine, for the utmost facility of practical sanitation, as follows :

Facility of administration.

Immediate removal of all persons from infected vessels—the sick to commodious and well-appointed hospitals, and the well to salubrious quarters during the period of incubation.

Safe Anchorage ground for unloading, if necessary, and thorough disinfection of vessels.

Disinfecting plant for personal effects and merchandise.

The several parts at such a distance and direction from one another and all populous neighborhoods and transient passengers, as to be wholly devoid of danger.

Effective Police.

These conditions were all considered *more than thirty years ago*, when artificial structures in the Lower Bay were first recommended for the purpose, and for several years urged by this writer, before the situation was approved of by the Legislature in 1866.

The law of 1863 which, by excluding all other places, forced the supplementary act of 1866—authorizing the island structures—was, for the most part, deduced from the report of the Committee on Quarantine Regulations at the Fourth National Sanitary Convention, held in Boston, in 1860, comprising regulations at ports of departure and during the voyage, as well as at ports of arrival.

With regard to ports of arrival, the report recommended and urged :

“ That in connection with every quarantine establishment, at the warehouses as well as at the hospitals, properly constructed steam-generators and steam chambers or vats, be provided for the disinfection of all personal, hospital, and ship's clothing and bedding, together with such other infected goods or things as may properly be subjected to high steam heat.”

This recommendation, in particular, was based upon the practical knowledge of the chief authors of the report, the late Dr. Elisha Harris and this writer. The same measures are very fully comprised in the New York law.

Moreover, with reference to the recent emergency, the New York law anticipated the possibility of it, by special provision

—as cited in our October number—making it “the duty of the Health Officer, in the presence of immediate danger, to take the responsibility of applying such additional measures as may be deemed indispensable for the protection of the public health.” Indeed, the quarantine law of New York enacted in 1863, excepting the *ninth* section, extracted from an older law authorizing interminable detentions, that was surreptitiously inserted by the political influence of the Health Officer in office at the time, is the foremost of modern laws for the protection of the public health against the importation of infectious diseases by practical sanitation at seaports.

And with regard to the exceptional section, under which abuses continued to be practised up to the time when the late Dr. S. O. Vanderpoel was appointed Health Officer, this writer, who was at the time Supervising Commissioner of Quarantine, was in active co-operation with the Chamber of Commerce Committee on Quarantine, in an effort to repeal it. But Dr. Vanderpoel, fearing that we should not be able to limit legislative action on the subject, if it was set going at that time (the abuses under the administration of his immediate predecessor had aroused so much political contention), assured us that if we would withdraw the bill we then had before the Legislature for its repeal, he would make the detention section a *dead letter*. The proposition was accepted; and from that time to the present, excepting the action under *the recent proclamation* with the President's signature, at the instance of the Surgeon-General of the Marine Hospital Service, there has been no return to the disgraceful practice. And, considering the embarrassment which this proclamation caused at the port and the injury it inflicted on commerce, it is certainly to be hoped that it will never again be repeated; for, besides the cruelty and danger to the persons it confined on board the infected vessels, it inflicted a useless cost to commerce of many tens, if not indeed of hundreds, of thousands of dollars. Almost every South American port, several West Indian ports, and even some domestic ports, echoed it by declaring quarantine against New York!

Moreover, there was scarcely one of more than a dozen of the larger seaports of Europe which had not a greater number of outcropping cholera cases during the same period than

New York, wholly without commotion, except, as in New York, increased energy in sanitary measures, without obstruction to commerce.

In view of the summary of the disposal of cholera, as above given from official records, the writer recalls with much satisfaction, the words he uttered at the meeting of the Kings County Medical Society, within a few days after the arrival of the first ship with cholera on board: "If a case should possibly come to Brooklyn, it would probably not come by way of the New York Quarantine." This opinion was based upon knowledge of the adaptation of the New York Quarantine and its appointments, of its practical work on several previous occasions, and of personal acquaintance with the present Health Officer.

Yet it is not surprising, considering the magnitude of commerce in disease in relation with immigration, against which the New York Quarantine has to contend, as compared with that of any other seaport, and especially with regard to the recent cholera assault, embarrassed as it was by the interference of the Marine Hospital Service, with the effect of temporarily choking it, that many physicians with little or no knowledge of its adaptations should be forward to proclaim their want of confidence in it, against such an assault. But altogether different and without reason has it been with some who jumped to premature conclusions in this regard, and made haste to condemn the New York Quarantine and its whole executive management, for the evident purpose of vaunting their own untried capabilities.

Of like nature has been the acceptance of political misrepresentations of the Health Department of New York, by the editors of some medical journals. Insomuch that our esteemed contemporary, *Journal d'Hygiène*, and some other periodicals abroad, of good standing, have been led to believe that politics is the only standard of sanitary administration in New York. Longer and better knowledge of the Health Department from the beginning, would show that the sanitarians in New York are not, any more than other people, the followers of one political party only.

Moreover, it may be safely said that, viewed from its sanitary aspect, the Health Department of New York has never

been better equipped than it is at the present time ; and that, so long as it and that of Brooklyn, and the New York Quarantine, continue to maintain the same sanitary energy as that which they have displayed against the recent appearance of cholera, there is no fear of that disease passing through, or of its gaining a foothold in this region.

LITERARY NOTICES AND NOTES.

PRACTICAL SANITATION may be greatly promoted by the extensive use of a new treatise on the subject just published.* It is not, however, a treatise in the ordinary sense of the term—not an elementary work, beginning with the alphabet of sanitation—but a work of many masters, comprising independent essays on the most important subjects, each one complete in itself. Of such are : Air, by J. Lane Notter ; Warming and Ventilation, by W. N. Shaw ; Meteorology, by G. J. Symons ; Water, by Thomas Stephenson ; Influence of Soil on Health, by S. Monckton Copeman, and a dozen other subjects of equal importance—by equally celebrated authorities—every one of which is a *treatise* of practical utility.

The work throughout is illustrated with diagrams and charts, is comprehensively indexed, and gotten up in the excellent style common to the publishers. No sanitarian can well afford to do without it.

MEDICAL JURISPRUDENCE AND TOXICOLOGY is a subject so closely related to the general work of the practical sanitarian that he should always have at his elbow a ready reference to it ; one that is not overloaded with an unnecessary detail of a large amount of literature on the subject requiring hours of research for the essential points in the decision of a question ; that contains the most lucid symptomatology of

* A Treatise on Hygiene and Public Health. Edited by Thomas Stevenson, M.D., F.R.C.P., Lond., Lecturer on Chemistry and Medical Jurisprudence at Guy's Hospital, Official Analyst to the Home Office ; and Shirley F. Murphy, Medical Officer of Health of the Administrative County of London. 8vo, vol. i., pp. 1018. Philadelphia : P. Blakiston, Son & Co.

questionable conditions, tests of poisons, and the readiest means of making them—such is a new book before us.*

HYGIENIC REQUIREMENTS OF SCHOOL FURNITURE† is the title of an illustrated pamphlet of fifty pages, which all school officers and teachers would do well to possess. The subject is treated from a strictly scientific point of view, taking into consideration the necessity of maintaining ease of position and facility of movement, as essential conditions for healthy growth, and the adaptation of seats and desks to such conditions. The illustrations are both apt and instructive, presenting object lessons of practical utility.

CLIMATE is so often blamed for the ills that flesh is heir to, with which it has had nothing to do ; and a change of climate, so often neglected by those who would benefit by it, that, looked at from its sanitary aspect, it is the least understood and, consequently, the most abused and the most frequently ill-used of all means promotive of health. Density, temperature, sunlight, moisture, rainfall, winds, and electricity are the ever-varying elements of climate—even in the same place—and upon the preponderance of one or another, or of several conjointly, the influence of climate upon health depends. The healthy man's power of resistance to the variations of climate often leads him to neglect the supersensitiveness of invalids ; and invalids—or even physicians in charge of them, who have not closely watched the effects of the weather—rarely appreciate the full significance of such elements of climate as may be in the ascendancy for the time being. But all—physicians and patients, and, most of all, the money-getters at any hazard—are prone to overlook bad local conditions and attribute their results to the influence of climate. These thoughts are suggested by a volume of excellent contributions

* *A Manual of Medical Jurisprudence and Toxicology.* By Henry C. Chapman, M.D., Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College of Philadelphia ; Member of the College of Physicians, of the Academy of Natural Sciences, of the American Philosophical Society, etc. Pp. 250. Illustrated. Price, \$1.25. Philadelphia : W. B. Saunders.

† By G. A. Bobrick, Civil Engineer, 150 Nassau Street, New York. Price, 50 cents.

now before us.* The American Climatological Association is composed of about one hundred members—physicians who have made climate more or less a subject of special study—who meet annually. In this volume there are twenty-eight special contributions, with discussions thereon, by some of the most competent observers, mostly with reference to pulmonary consumption, but much of value with regard to other diseases, and to climatological topography, of eminent practical utility.

A NEW TEXT-BOOK OF SURGERY, comprising all the advances made in science and art of surgery during recent years, should be alike welcome to every busy practitioner and medical student. For, however conversant practitioners and students may be with the current literature of the subject, the research necessary to apply such knowledge when required is too great to be made thoroughly useful. Indeed, the subject is cyclopædic, hence the greater need of such a work as the one now before us.† The authors are all men of distinction. "Surgical Bacteriology"—surgery in its sanitary aspect—is the primary topic, illustrated with four colored plates of many figures. The conditions of microbes, how to destroy them and the resultant benefits, are all lucidly described. Then follow the subjects common to text-books on surgery in their usual order—beginning with inflammation.

The chapters are unsigned—thus inferentially showing the joint responsibility of all the authors. As a whole, therefore, as stated in the preface, "the book may be said to express the consensus of opinion of the surgeons who have joined in its preparation;" which, considering the standing of the

* Transactions of the Eighth Annual Meeting of the American Climatological Association, held at Washington, D. C., 1891. J. B. Walker, Philadelphia, Secretary. Philadelphia: W. B. Saunders.

† An American Text-Book of Surgery for Practitioners and Students. By Charles H. Burnett, M.D.; Phineas S. Connor, M.D.; Frederic S. Dennis, M.D.; William W. Keene, M.D.; Charles B. Nancreede, M.D.; Roswell Park, M.D.; Lewis S. Pilcher, M.D.; Nicholas Senn, M.D.; Francis J. Shepherd, M.D.; Lewis A. Steinson, M.D.; William Thompson, M.D.; J. Collins Warren, M.D.; and J. William White, M.D. Edited by William W. Keene, M.D., and J. William White, M.D. Pp. 1229. Profusely illustrated. Prices—cloth, sheep, and Russia: \$7, \$8, and \$9. Sold by subscription only. Philadelphia: W. B. Saunders.

authors—and their relations to the most important hospitals throughout the country, affording the widest possible field of practice and observation—assures the expression of surgery at its highest standard of excellence. The colored plates and other illustrations, paper, and presswork—indeed, the mechanical execution of the work in all respects is excellent.

BANDAGING* is a timely and important addendum to the preceding. A thoroughly practical book, comprising essential knowledge to every medical student. Without this knowledge, good results in the treatment of fractures and other injuries, and after surgical operations are unattainable. The illustrations, of which this book largely consists—with just enough text to render them clearly comprehensive—are its special merit; showing and describing bandages of every kind, and how to apply them so as to obtain the best results.

GONORRHŒA is a subject with which all medical students and young physicians find it necessary to become early acquainted, and fortunate are they if they gain their first impressions from a reliable source, such as the little book now before us.† It is a duodecimo of two hundred and fourteen pages, and therefore of necessity concisely written, but it is lucid and practical.

“DARWIN AND AFTER DARWIN,” ‡ is the first of three volumes to be published under this title, but is complete in itself, being devoted to the general theory of organic evolution, as this was left by the labors of Darwin at his death in

* *The Principles and Practice of Bandaging.* By Gwilym G. Davis, M.D., Member of the Royal College of Surgeons, England; Assistant Demonstrator of Surgery, University of Pennsylvania, etc. Pp. 70. Price, \$3. Detroit: George S. Davis.

† *Gonorrhœa and Urethritis.* By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary System and Syphilology, in the Chicago College of Physicians and Surgeons; Surgeon-in-Chief to the Genito-Urinary and Venereal Department of the West Side Dispensary; Lecturer, etc. Chicago: The Physician's Leisure Library. 25 cents a copy. Detroit: George S. Davis.

‡ *An Exposition of the Darwinian Theory and a Discussion of Post-Darwinian Questions.* By George John Romanes, M.A., LL.D., F.R.S. I. The Darwinian Theory. Price, \$2.00. Chicago: The Open Court Publishing Co.

1882. It deals with the purely historical side of biological science as it existed at the time of Darwin's death, as the third volume, yet to be published, will also deal with questions which have been raised since Darwin's death. This volume the author presents as a systematic exposition of what he terms the "Darwinism of Darwin," and is offered to the general reader rather than to professed naturalists.

This volume is noteworthy, not because the results reached are undeniable, but that the scope of the evidence and the arguments based thereon, from the pen of a naturalist of high attainments, may be brought to the notice of such of our readers as may be disposed to examine them, with the assurance, that from our standpoint, they present the strongest arguments, clothed in the simplest, non-technical language which the subject admits of, for the truth of the transmutation of species of organisms one from the other, which, up to this date, has come to our notice ; and so far as we can judge, the advocate of this theory of advanced evolution can look for nothing more conclusive than is here presented.

The origin of life is not touched upon further than in the following sentence : " We are concerned only with the origin of particular forms of life—that is to say, with the origin of species. No doubt the question as to the origin of life is in itself a deeply interesting question, and although, in the opinion of most biologists, it is a question which we may well hope will some day fall within the range of science to answer, at present it must be confessed that science is not in a position to furnish so much as any suggestion upon the subject, and therefore our wisdom as men of science is frankly to acknowledge that such is the case."

The evidences, as also the arguments based thereon, are treated separately in the following order : First, classification, or the principles upon which the determination of species rests. Second, morphology, or the evidence from adaptive modifications of structure in cases where the need or benefit of such modifications is apparent. Third, embryology, or the evidence from the several phases which the embryotic life of the higher forms of animals exhibit. Fourth, palæontology, or evidence furnished by the researches of geologists in the fossil remains of the earth's crust. Fifth, geographical dis-

tribution of species of plants and animals, or the correlation between geographical areas of distribution and affinities of classification. Then follows the theory of natural selection with the evidences in support of it, and the criticisms on this theory by the advocates of special creation.

It should be borne in mind that evolution and Darwinism are not convertible terms, although very largely so regarded, at least in this country. Evolution is held by many eminent theologians as not incompatible with belief in the overruling providence of God, who created and continues to exercise a sovereign power in the affairs of this world, and what is called natural law is but an expression for His will, and the evolution of organisms one from the other, if proven, is but the method by which He has seen fit to operate by means of laws of His own enactment ; and that all the changes which we see around us are but parts of a great plan and purpose designed by Him, and which is largely incomprehensible to us. Darwinism, on the contrary, says nothing of a Creator, admits the existence possibly of a primordial life-germ from which, through the action of physical laws, such as heredity, variation, and natural selection, or the survival of the fittest, all the forms of life that we see owe their origin and continuity, and that man, physically and intellectually, is but the product from this same germ, without other cause for his being or his faculties than the exercises through untold ages of the above-mentioned natural laws.

It has been objected to the Darwinian view of the potency of "natural selection," in bringing about from the lower organisms all the forms of life which we see around us, that it is only operative *after suitable variations have arisen*. Natural selection does not *cause* these suitable variations, therefore Darwin and his followers are in error in representing the principle as one which *produces* adaptations. The Duke of Argyle, in his "Reign of Law," takes this ground, which Dr. Romanes combats as follows ; and the quotation will give a fair specimen of his style of argument in opposition to the doctrine of special creation.

"Now, although this objection has been put forward by some of the most intelligent minds in our generation, it appears to me to betoken some extraordinary failure to appreci-

ate the very essence of Darwinian doctrine. No doubt it is perfectly true that natural selection does not produce variations of any kind, whether beneficial or otherwise; but if it be granted that variations of many kinds are occurring in every generation, and that natural selection is competent to preserve the more favorable among them, then it appears to me unquestionable that this principle of selection deserves to be regarded, as in the full sense of the word, a natural cause. The variations being expressly regarded by the theory as more or less promiscuous (this word promiscuous has in a long note its meaning still more obscured), survival of the fittest becomes the winnowing fan, whose function it is to eliminate all the less fit in each generation; in order to preserve the good grain out of which to constitute the next generation. And as this process is supposed to be continuous through successive generations, its action is supposed to be cumulative, till from the eye of a worm there is gradually developed the eye of an eagle. Therefore it follows from these suppositions (which are not disputed by the present objection), that if it had not been for the process of selection, such development would never have been begun; and that in exact measure of its efficiency will the development proceed. But any agency without the operation of which a result cannot take place may properly be designated the cause of that result; it is the agency which, in co-operation with all the other agencies in the cosmos, produces that result."

The closing paragraph will give our readers a clew to the scope of the book, and its bearing from the standpoint of the author. It is scarcely necessary to say that the book will not be republished by the Christian Aid Society.

"I must once more observe that the difficulty thus presented to theism is not a difficulty of modern creation. On the contrary, it has always constituted the fundamental difficulty with which natural theologians have had to contend. The external world appears in this respect to be at variance with our moral sense; and when the antagonism is brought home to the religious mind, it must ever be with a shock of terrified surprise. It has been newly brought home to us by the generalizations of Darwin; and therefore, as I said at the beginning, the religious thought of our generation has been

more than ever staggered by the question, Where is now thy God? But I have endeavored to show that the logical standing of the case has not been materially changed; and when this cry of Reason pierces the heart of Faith, it remains for Faith to answer now, as she has always answered before—and answered with that trust which is at once her beauty and her life—Verily, thou art a god that hidest thyself.”—J. W. A.

COLUMBUS is the leading subject of most of the popular magazines for October. *Harper's* contains a sketch of his life with a critical estimate of his character and services by Professor Dr. S. Ruge, of Dresden. This article embodies the results of the latest and most careful researches, and presents the Genoese discoverer as he really was, awarding him due praise for his great achievements, while at the same time removing from the story of his life much that may be regarded as purely imaginative.

COLUMBUS did not pay very much attention to the myths that had come down from ancient times, nor to those that were circulated in his day. They were of value to him only because they showed that from a very early period in the world's history the opinion had been held that the Atlantic was not simply a waste of waters with no western shore.

But his belief in the existence of western lands was greatly strengthened by evidence the waves themselves gave in bringing driftwood and other strange objects to the shores of Europe. This evidence he eagerly collected from sailors who returned from long voyages, and from the inhabitants of the Atlantic islands.—*St. Nicholas*.

FROM COLUMBUS TO LIEUTENANT PEARY.—The discovery of America, begun by Columbus (says the *Review of Reviews*, under the caption of “Progress of the World”), has been a continuous process. It has gone on steadily for four hundred years and is not completed yet. There still remain portions of the interior and of the northern coast lines that are not definitely known. Counting Greenland as a part of our western world—as geographers have habitually done—we may regard Lieutenant Peary's exploit in this very anniversary year

1892 as simply a continuance of the work of Columbus and his successors. The *Reviews of Reviews* last year told of the perilous undertaking and of the anxiety that was felt for the little party wintering so far north. The *Kite*, which took Peary, his wife and his associates last year and left them in McCormick Bay, has now had the happy fortune to find them and bring them back. The return of the Peary Expedition was one of the pleasantest incidents of the month of September.

PINZON had no acquaintance at court, he was without title or rank, he was under no instructions, nor was he under obligation to any one, says Isaac Bassett Choate in an article on "Columbus and His Friends" in the October *New England Magazine*. By an act of spontaneous patriotism he put his influence and authority, his person and the persons of his brothers and other relatives, the ships that were his own—in a word, the material of the expedition—into the hands of Columbus, with the perfect understanding that the latter was lacking the means and the influence to bring the fleet together. In addition to all this he advanced on this slender credit almost half a million of *maravedis*, or, it may be, the third part of the total expense. If the undertaking failed, Columbus would lose some of the illusions of his life, which constituted the sum of his investment, but if he did not lose all hope he would soon be found again as a suitor at some court. Pinzon on his part would sacrifice the half million without any hope that a poor foreigner, and one who was wholly misunderstood, would ever find means to reimburse him.

WHAT THE COLUMBIAN EXHIBITION WILL DO FOR AMERICA.
—We confidently assert, on the evidence of all the most experienced judges of art whom it has been possible for us to consult, that the Chicago Exhibition will far surpass even the Paris one of 1889 when considered in its entirety and for its artistic interest. A much more beautiful, scholarly, and monumental type of architecture has been adopted for its main buildings; accessory works of an ornamental kind will be more numerous, more imposing, and more original, while at least equally artistic in character; greater care is being

taken that harmony of effect shall not be injured by the aspect of minor works of utility or decoration ; and the neighborhood of the great lake, and the novel and skilful way in which wide expanses of water and varied plantations have been made the basis of the plan of the grounds themselves, will much more than compensate for the absence of a rushing river like the Seine and a dominating hill like the Trocadéro.

Those who fail to see the exhibition of 1893 will fail to see the most beautiful spectacle which has been offered to the eyes of our generation. But those who have time to see only its general aspect, without studying any of its collections—wonderfully interesting though these will be—will have seen the very best of it.

We shall have an exhibition more dignified, beautiful, and truly artistic than any the world has seen ; and it will be entirely our own, in general idea and in every detail of its execution. It will convince all cultivated Americans of the vitality and vigor and independence of American art ; and, we believe, its effect upon the vast public which will view it will convince them of the genuineness of the nascent American love of art.—From "*Topics of the Time*," in the *October Century*.

OUR WAGONWAYS are described by *Harper's Weekly*, of September 17th, 1892, as a crushing mass of iniquities and drawbacks to civilization. The tendency of population toward the cities, the abandonment of farms, and even the modern development of "slums," are largely ascribed to bad roads, which are said to be worse and more numerous here than in any other civilized country. Bad roads, it is argued, cause schools and churches to be neglected, prevent social intercourse in the country, and make life in the rural districts cheerless, isolated, and narrow.

A movement is now under way to utilize a part of the exposition grounds at Chicago for a complete exhibit which shall show the people how to build and how to keep good roads, as well as teach them the almost vital need there is that we should all of us possess them. Very many of the implements and materials in use in road-building are included in the original classification of exhibits for the Fair, and all are to be displayed there.

IN the October *Atlantic Monthly* Professor N. S. SHALER thus pleads for better roads :

“ Judged by the standard of our local ways, America as a whole must be regarded as the least advanced of all countries which are commonly classed as civilized.

“ A very strong argument could be made to support the point that the United States would have been in all essential regards more prosperous than it is at present if, in place of its railways, it had secured a system of highways constructed and maintained in the highest state of the road-maker's art. . . . Our farmers would know more of one another than they do at present. Though they could not market their corn in Liverpool, they would still be able to take it to mill without the sore tax which the bad roads so generally levy upon them, or which the toll-taker requires as the price of a passable way.

“ Where the roads are bad, all the duties of the citizen and the social being are most imperfectly done. The people get in the habit of a hermit life ; the winter season, which should be the time of social intercourse, is passed in seclusion ; households have but little touch with one another, and any real communal life becomes impossible.”

LITTELL'S LIVING AGE.—Approaching very near its semi-centennial, that venerable and *only* eclectic weekly, *Littell's Living Age*, is apparently as young, vigorous, and valuable as in its earliest years. The issue for October 1st, No. 2518, is the initial number of the 195th volume and appears in an entirely new dress. Its old, familiar drab-colored covers remain unchanged, but its interior has been transformed. With new, clear, and handsome type, and the great improvement noticeable in its general “ make-up,” with its excellent paper and fine press-work, it compares favorably with any other magazine published. It presents every side of the writing world, and with a satisfactory completeness attempted by no other publication.

For such a publication its subscription price, \$8 per annum, is low, but by taking advantage of its clubbing rates, even better terms may be obtained. Send 15 cents for a specimen copy to Littell & Co., Publishers, Boston, Mass.

PAMPHLETS, REPRINTS, REPORTS, ETC., RECEIVED.

Pulmonary Phthisis in its Relation to Insanity and other Neuroses. Thomas J. Mays, M.D., Philadelphia, Pa.

Treatment of Tuberculosis with Tuberculocidian. Dr. E. Klebs, Zurich.

Abdominal and Pelvic Surgery, Including Thirty-two Successful Cases of Laparotomy. William H. Wathen, M.D., Professor of Abdominal Surgery, etc., Louisville, Ky.

Ideality of Medical Science. Maurice J. Burstein, A.M., M.D., 180 Henry Street, New York.

AMERICAN PUBLIC HEALTH ASSOCIATION.

ADDITIONAL information at the time of going to press with this number, to that before published, in regard to the forthcoming meeting at the CITY OF MEXICO, NOVEMBER 29TH AND 30TH, DECEMBER 1ST AND 2D :

PULLMAN CAR RATES.

As an indication of the cost of Pullman car accommodations the rates for either an upper or lower berth are given from certain points. These rates are for one way between the points named and the City of Mexico : Boston, \$24.50 ; Washington, \$21 ; Chicago, \$19 ; St. Louis, \$18 ; Kansas City, \$16.50 ; New Orleans, \$14 ; San Antonio, \$10.50 ; Eagle Pass, \$9 ; El Paso, \$9 ; Torreon, \$5. The rate for a whole section is just double that of a berth.

EXECUTIVE COMMITTEE.

The headquarters of the Executive Committee will be at the Hotel Iturbide. A meeting of the committee will be held at this house, at the room of the Secretary, on MONDAY, NOVEMBER 28TH, at 4.30 P.M. Subsequent meetings of the committee will be held daily at such hours as may be hereafter determined.

ADVISORY COUNCIL.

The Advisory Council will meet on Thursday, December 1st, the hour and place to be announced by the President,

for the purpose of acting as a nominating committee of officers for the ensuing year, and to consider such questions and make such recommendations as shall best secure the objects of the Association.

HOTELS.

The leading hotel of the City of Mexico is the Iturbide, formerly the palace of the emperor, whose name it bears. It will be the headquarters of the Association while in the city. It has about 135 rooms, and the rates are from \$1 to \$5 per day for rooms. To members of the Association this hotel will make a discount of 25 per cent from its regular rates.

The San Carlos is pleasantly located, has about 60 rooms, with prices substantially the same as the Iturbide. This hotel will also make a reduction of 25 per cent from usual prices to members of the Association.

The Hotel Bazar will make a discount of 15 per cent.

The Hotel Humboldt, 90 rooms, offers a rate of \$3.50 per day, including meals. A small additional charge will be made for an extra bed.

The Hotel del Jardin offers a discount of 20 per cent from its regular rates of from \$3 to \$8 per day. Meals in addition will be \$1.50 per day, and extra beds in a room 40 cents each.

In addition to the above is the following list of hotels, furnished by the Mexican International Railway. It should be noted that, with the exception above mentioned, the rates given include rooms only. But few hotels in Mexico furnish meals; guests usually obtain meals at a restaurant, generally near by. Good board may be had at these restaurants for \$7 per week; single meals, 50 cents.

Besides the foregoing are the following:

American Hotel, 60 rooms, 14 Vergara, \$1 to \$3; Bella Union, 52 rooms, La Palma, 50 cents to \$2.50; Comonfort, 46 rooms, 5 de Mayo, \$1 to \$2; Continental, 50 rooms, 5 de Mayo, \$1 to \$2.50; Europa, 40 rooms, Coliseo Viejo 19, 50 cents to \$2; Gilow, 30 rooms, San José el Real, \$1 to \$5; Gran Oriente, 32 rooms, Monterilla, No. 10, \$1 to \$1.50; Gran Sociedad, 60 rooms, Espiritu Santo, 50 cents to \$3; Guardiola, 51 rooms, 1st San Francisco, \$1 to \$2; Nacional, 43 rooms, 3 de San Francisco, \$1 to \$1.50; Refugio, 56 rooms, Refugio, \$1 to \$2.50; San Augustin, 50 rooms, San August-

tin, 75 cents to \$1.25 ; San Francisco, 24 rooms, 1^a San Francisco y Gante, \$1 to \$2 ; Universal, 58 rooms, Espiritu Santo, 50 cents to \$2.50.

The above prices are in Mexican money.

As United States money is at quite a premium in Mexico, the expenses there will be materially reduced by reason of this premium. Greenbacks can be readily exchanged for Mexican money in that country at the prevailing rates of exchange ; it will be unnecessary for any one to burden himself by carrying gold. American silver should not be carried there. At the present time a United States dollar is worth about \$1.45 in Mexican currency—an important factor to be taken into account when considering hotel prices, etc., in Mexico.

At Laredo, Eagle Pass, and El Paso, travellers can obtain Mexican silver in exchange for United States gold or greenbacks, and only enough should be exchanged to meet way expenses to the City of Mexico ; further exchange if desired can be readily made at the Mexican Capital, or in any of the larger cities of that country.

The money denominations in Mexico are : *centavo*, a cent ; a *cuartilla*, $3\frac{1}{8}$ cents ; a *medio*, $6\frac{1}{4}$ cents ; a *real*, $12\frac{1}{2}$ cents ; *dos reales*, 25 cents ; *cuatro reales*, 50 cents ; *seis reales*, 75 cents ; *un peso (ocho reales, 8 reales)*, \$1.

WHAT CLOTHING TO WEAR.

The same weight clothing required during the early fall months in the North is suitable in Mexico during the winter months, and, in fact, all the year around, excepting on the Gulf Coast hot lands. It is well to carry extra wraps, such as light overcoats for gentlemen and shawls for ladies, for early morning and evening wear. Warm flannel underwear should be worn, and in the dry climate of Mexico they will not prove uncomfortable, as the heat is not oppressive. A liberal supply of clean linen should be taken on the trip, as laundry facilities are not always readily obtainable.

SPECIAL NOTICE.

Members and applicants for membership, with ladies, will be entitled to all the privileges extended to the Association.

As parties not members or applicants will, doubtless, take

advantage of the low rates offered the Association to visit Mexico, the certificate plan is adopted in order that those entitled to the privileges of full membership may be first provided for.

The Local Committee of Arrangements will recognize the certificate. Members and applicants who have not already received the card certificate, should apply to the Secretary at once for it.

No passports are required to enter or to leave the Republic of Mexico.

THE INDICATIONS are, at the time of issuing this circular, that a large number of persons from the United States and Canada will attend the forthcoming meeting.

IRVING A. WATSON,
Secretary.


For the most direct and the most delightful route from New York, see advertising pages iii., iv., and v.

THE SANITARIAN FOR DECEMBER AND FOR 1893.

THE SANITARIAN for December will be delayed until about the 20th of the month, on account of the absence of the Editor, at the Meeting of the American Public Health Association—November 29th—December 2d—at Mexico. *It will contain an abstract of the Proceedings of the Association at that meeting.*

NEW SUBSCRIBERS FOR 1893, paying their subscriptions *before December 15th*, will be supplied with the December number without extra charge.

THE SANITARIAN will continue in the future, as it has been hitherto, devoted to the promotion of the art and science of sanitation, mentally and physically, in all their relations. Ninety-six pages *text*, monthly; *two* volumes yearly. The volumes begin January and July. Subscriptions at any time. \$4.00 a year, in advance.

 All correspondence should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

THE SANITARIAN.

DECEMBER, 1892.

NUMBER 277.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

THE TWENTIETH ANNUAL meeting of the American Public Health Association, at the City of Mexico, November 29th—December 2d, 1892, marks an event in the progress of the Association's work that will, doubtless, as it ought, attract the attention of every civil government on the American Continent.

At no previous meeting has the Association been received with such public acclaim or more cordial hospitality.

Members began to arrive several days before the appointed time, but before reaching the city they were met in the trains by delegates of the Board of Health of the City of Mexico and other citizens, to welcome them and render such assistance as might be required. These gentlemen spared no pains in rendering every needed information, and were at all times courteous and obliging.

The arrangements for the reception were perfect. There were several bands of music present—a regimental band, the band of the Correctional School, and the band of the Industrial Orphans. As the trains rolled into the station the ears of the Americans were gladdened with the familiar strains of "Hail Columbia," played by each of the bands stationed some distance apart on the platform.

The gentlemen of the Reception Committee wore badges of blue and white, and each man had a distinctive number. A private carriage holding four persons had been placed at the disposal of each committeeman, and there were three persons in the train bearing the same number. Each committeeman found his three guests and conducted them to the carriage. On the way down the platform each lady visitor was

presented with a handful of fresh-cut flowers by pretty Mexican ladies. Once in the carriage the visitors were soon whirled up the broad streets to the hotels of their selection. Nothing went wrong to mar the pleasure of the occasion. A large squad of mounted police were on duty at Buena Vista, and perfect order was maintained.

At 10 o'clock on Monday morning (November 28th), the members of the Association who had arrived up to that time, accompanied by a number of interpreters, left the headquarters at the Hotel Iturbide for the "Hospicio de los Pobres" or Asylum for Poor Children. The party walked to the Hospicio, on Avenida Juarez, where, at the entrance, was stationed the Industrial School band of thirty-five musicians. The company was received at the portal by Mr. Luis Ortiz y Aguilar, one of the directors of the orphanage, who conducted them through the whole institution.

As the party entered the patio some three hundred boys, all under twelve years of age, were drawn up in line on each side of the passage, and all respectfully saluted the visitors as they passed between the lines.

The dormitories were first visited, where the neat, clean beds, well furnished with white linen, warm woollen blankets and knit cotton spreads, called forth comments of admiration from all present. The painted floors and walls were spotlessly clean, as was, indeed, every part of the immense building.

After inspecting the dormitories all adjourned to the balcony surrounding the main patio, where the boys were marched out in four companies and went through a number of military evolutions in a most creditable manner and amid the applause of the spectators. The girls were then marched forward, and, with the boys, went through a number of calisthenic exercises, which also excited the admiration of all present. A large number of the movements were executed by command from the tap of a drum.

At the close of these exercises the visitors were conducted to the art needlework department, where some exquisite specimens of lace work and embroidery were exhibited. In this department every lady and several of the gentlemen were each presented with an artificial flower, made by girls of the institution.

The baths, kitchen, and dining-rooms were next visited—all being found uniformly clean.

The Cathedral and Art Gallery were next visited, when the party adjourned for luncheon at 1 P.M.

NATIONAL SCHOOL OF MEDICINE.

The programme for the afternoon included many points of interest, but owing to the lateness of the hour of starting, 4 o'clock, what visits were made were necessarily brief. The party arrived at the National School of Medicine at 4.14, and were conducted through the institution by Dr. Casimiro Liceaga, assisted by the courteous corps of professors. The building was thoroughly inspected from top to bottom, and as each guest left the building he was handed a neat pamphlet, printed in the English language, giving the history of the college from its foundation and containing a list of its faculty. The party then proceeded to the

NORMAL SCHOOL FOR LADIES.

This institution is one of the finest in the world, and upon entering the beautiful patio of the school the party was met by a delegation of young ladies, who took the party in sections and escorted them to the different departments, those of the kindergarten, physical culture and music, with their complete appliances, attracting particular attention.

In the department of music the young ladies performed several classical selections on the piano, and the sweet-voiced Srita. Maria Tovar sang. In the department of art needlework the lace and embroidery which is being made for the Woman's Department of the World's Fair was exhibited.

Notwithstanding that darkness was throwing its veil over the earth, a large number of the party proceeded to the Conservatory of Music, where only a short visit was made, and the party reached their headquarters at the Hotel Iturbide at 6.15, tired out, but, as was generally expressed, well pleased with the day's entertainment.

THE LADIES.

The Anglo-Saxon and Mexican ladies of the Reception Committee, to entertain the visiting ladies during the hours

that the Health Congress is in session, arranged the following programme which met the approval of the Local Committee of Arrangements :

TUESDAY, November 29th, 9 A.M., visit Normal School for Women and School of Arts and Trades for Women. 3 P.M., curiosity stores and shopping.

WEDNESDAY, November 30th, 2 P.M., Tamalada at Hacienda de Soledad, at the invitation of Mr. Jorge Carmona.

THURSDAY, December 1st, 4 P.M., San Fernando Cemetery.

FRIDAY, December 2d, 10 A.M., Monte de Piedad. 4 P.M., Conservatory of Music.

Besides which the Local Committee of Arrangements prepared the following general programme :

NOVEMBER 29th, at 8 A.M., visit to the beneficiary offices and Central Pharmacy, Xicotencarl Street ; visit to the Mining School, San Andres Street ; from 9 to 12, Session in the Chamber of Deputies, corner Factor and Canoa streets, opened with prayer by Rev. J. W. Butler, D.D. ; from 1 P.M., visit to the Arts and Trades School for Men, Estampa of San Lorenzo Street ; visit to the National Preparatory School, San Ildefonso Street ; from 3 to 5 P.M., session in the main hall of said school, opened with prayer by a Catholic clergyman ; at 5 P.M., visit to the Central Meteorological Observatory, National Palace ; at 8 P.M., solemn inaugural session at the National Theatre, opened with the blessing of Archbishop Alarcon.

NOVEMBER 30th, at 8 A.M., visit to the offices of the Superior Board of Health, Plaza of Santo Domingo ; from 9 A.M. to 12 M., ordinary session in the Chamber of Deputies, opened with prayer by Rev. A. J. Steelman ; from 1 to 3 P.M., visit to the National Museum, Moneda Street ; from 3 to 5 P.M., ordinary session in the Preparatory School, opened with prayer by a Catholic clergyman ; visit to the American Hospital, Cebollon Avenue ; at 8 P.M., Reception by the Hon. Ayuntamiento in the Guild Hall, and in the name of the city to the members of the Congress.

DECEMBER 1st, at 8 A.M., visit to the National Library, San Augustin Street ; visit to the Beistegui's Hospital, Regina Street ; visit to the Military Hospital ; afterward attendance at the Chamber of Deputies to witness the taking possession

of the Presidency of the Republic by General Porfirio Diaz, and then to the National Palace to offer him congratulations ; from 8 A.M. to 5 P.M., ordinary session in the Escuela Preparatoria, opened with prayer by a Catholic clergyman ; at 5 P.M., promenade Viga Avenue ; at 8 P.M., reception of the members of the Congress at the Jockey Club.

DECEMBER 2d, at 8 A.M., visit to the Medical National Institute ; visit to the Hospital of Maternity, Revillagigedo Street ; from 9 A.M. to 12 M., ordinary session in the Chamber of Deputies, opened with prayer by Rev. H. W. Brown ; from 1 to 3 P.M., visit to the School of Fine Arts ; from 3 to 5 P.M., ordinary session in the Preparatory School, opened with prayer by a Catholic clergyman ; from 5 to 7 P.M., meeting of the Executive Committee in the Preparatory School ; at 8 P.M., solemn closing session in the National Theatre.

DECEMBER 3d, excursion to the drainage works ; the members will be duly advised of the starting hour ; at 8 P.M., grand serenade in the Alameda Park.

DECEMBER 4th, at 7 A.M., excursion to the villages around the capital ; at 11 A.M., visit to the famous baths " El Peñon," where the owner, Hon. Manuel Romero Rubio, will have the pleasure of receiving the members of the Health Congress ; at 4 P.M., reception by the President of the Republic at the Palace of Chapultepec.

N. B.—For the morning visits and excursions, the place of meeting will be the Hotel Iturbide, fifteen minutes before the appointed hours.

THE SESSIONS—FIRST DAY.

According to the programme, the opening session should have been at 9 A.M. on Tuesday morning, November 29th, but many of the members were tired out from the exertions of sight-seeing the day before, and did not make their appearance in the Iturbide until 9.15, when all adjourned to the Chamber of Deputies, and the session was auspiciously opened with prayer by Rev. John W. Butler, D.D.

The President of the Association, Dr. Felix Formento, of New Orleans, La., made a few remarks, urging upon the members the necessity of promptness in attending the meetings.

Dr. Liceaga then made some announcements of change of programme, and also that the Association had received five hundred and fifty-six applications for membership, over half of which were from this Republic. These applicants were unanimously elected members, the Secretary, Dr. Irving A. Watson, casting the vote of the Association admitting all to full membership.

Then Dr. Formento arose and presented to the Association the name of PORFIRIO DIAZ as an honorary member. The nomination was carried amid tumultuous applause.

The first paper on the programme for the day was on "The Ground of Safety," by Dr. R. C. Kedzie, of Lansing, Mich.; but as he had not yet arrived, Dr. Antonio J. Carbajal read a paper on "The Influence of Climate on the Progress and Severity of Pulmonary Tuberculosis in Mexico."

Dr. Kedzie having in the meantime arrived, followed, with a paper illustrated with several practical experiments.

The next paper was by Dr. W. A. Haskell, on "Medical Demography."

The morning session was closed by Dr. Domingo Orvañanos, a member of the Supreme Board of Health of Mexico, whose subject was the "Climate of the City of Mexico." The subject was afterward discussed at length by Dr. Otero.

The afternoon session was held in the National Preparatory School.

The first paper read was "General Considerations upon the Public Health," by Dr. Rafael Lavista, of Mexico.

Dr. W. M. Yandell, Health Officer at El Paso, Tex., read a paper on "Contagious Diseases on the Rio Grande Border."

A paper showing a new method of quantitative chemical analysis to obtain nitrogen from organic matter, based on the transformation of nitrogen into ammonia, was read. The process was by the Mexican chemists, Alejandro Uribe and Victor Lucio y Ortega, and attracted much attention.

Dr. William T. Corlett, of Cleveland, O., read a paper "On Some of the Infectious Diseases."

After the regular papers, as above outlined, had been read, Dr. Liceaga brought up a subject for discussion and spoke at length "Against the Marriage of Persons Infected with Tuberculosis." An animated discussion followed, with a general concurrence in the views of Dr. Liceaga.

THE INAUGURAL SESSION.

The reception by the citizens, on the evening of the first day, was at the National Theatre, and exceedingly brilliant. The building was filled from pit to dome, and the best people of Mexico were in attendance from President Diaz and family down.

Archbishop Alarcon invoked the blessing of Almighty God on the discussions and acts of the Congress, and that its resolutions might be guided with wisdom and tend to alleviate the sufferings of mankind.

Dr. Eduardo Liceaga, Chairman of the Local Committee, delivered the address of welcome, and a most eloquent speech it was.

A fine musical programme was also given, the best musicians in the city taking part.

Dr. Eduardo Liceaga closed his welcoming address, in substance, as follows :

And what have our visitors come to do in our midst? They have come to impart to us their own faith, to instruct us in their method of working, to spread new ideas, to concert with us a mutual plan of defence against the propagation of such diseases as arise among us, to see what means nature employs to enable us to breathe at this immense altitude, to observe how we build our dwellings in a climate in which artificial heat is not required, to admire the purity of our atmosphere, the transparency of our light, the radiance of our sun, to examine the modifications produced by the meteorological conditions of this altitude, within the tropics, on the mode of existence of animated beings.

As for ourselves, we welcome them with open arms. We purpose to show them our hospitals, far inferior, alas, to the splendid monuments which they have reared in the name of charity, to explain in what manner the government extends protection to foundlings, to ailing children, to orphans, how it imparts to them a knowledge of the mechanical arts, how it reclaims the erring, and how many of these institutes are organized on a military footing. We shall conduct our guests through the establishments where education is furnished to the teachers, male and female, whose duty it will be to spread the benefits of elementary knowledge, through our Prepara-

tory Professional School, through our Schools of Medicine, Jurisprudence, Music, and Fine Arts, through our National Medical Institute, not on account of the intrinsic excellence of these establishments, nor because we imagine that they can endure comparison with the superb foundations, which private munificence has reared in your own countries, but because we believed that, perchance, you may take an interest in beholding these evidences of the moral and intellectual development of this people, so torn by political convulsions which attack nations in their infancy and adolescence, just as disease attacks and exhausts the physical and mental constitution of man in boyhood and early youth.

We shall show you, too, the works recently undertaken to secure an improved water-supply. At your last meeting one of our sanitary engineers explained to you the project for a new sewerage system for the city, to supersede the present very defective one, and now you are about to see the provisional works undertaken for the purpose of improving the flow of the sewers until such time as the new scheme can be carried out in its entirety. We shall enable you to view, and as hygienists you will be interested in viewing, one of the most gigantic works ever undertaken for the sanitation of any city—the drainage of the valley of Mexico. Finally, we shall conduct you through the suburbs of the city and spread before your eyes a view of this broad valley from the historical hill of Chapultepec.

And as for you, esteemed fellow-countrymen, who have also left home and business and come hither from afar to recount your experience of the dreaded yellow-fever, your speeches will inform us whether that scourge is produced spontaneously among you or whether it is imported, and if so, in what way, and what steps you have taken to liberate the coasts from its ravages. Others among you will tell us the places where malaria prevails, and what has been done for their sanitation, the regions in which tuberculosis is unknown or its ravages are less violent than on our coasts, the towns which are free from diphtheria, those others in which it rages, the measures which you recommend to prevent the spread of typhus, the method by which your cities are supplied with water, and all other matters of interest to hygienists.

Little has been done as yet toward the sanitation of our cities, but this is a truth which we need not be ashamed to confess, for we are a young people desirous of understanding thoroughly the evils under which we labor before seeking a remedy. Our governments have given us good sanitary laws, and it remains for us to devote our intelligence, our energy, and our zeal to the service of our countrymen and the fulfilment of those laws, thus contributing to the noble ends of the American Association of Public Health, which has accomplished such splendid results in the United States and Canada, and which will, we trust, accomplish the same results here.

Gentlemen, receive the thanks which I offer you in the name of my country for having selected this city as the scene of your annual meeting.

Gentlemen, I bid you welcome.

The Presidential Address, by Dr. Felix Formento, is promised in full for our January number.

SECOND DAY'S SESSION—NOVEMBER 30TH.

The morning session was called to order by the President. After prayer by Rev. A. J. Steelman several applicants for membership were admitted.

The constitution was then so amended as to include the Republic of Mexico and Dominion of Canada.

The Advisory Council was then called and vacancies filled.

The report of the Treasurer for the past year was read. The receipts for the year were \$1993.14 and the disbursements \$1835.78, leaving a balance on this year's account of \$57.36.

Reports from the Executive Committee were read.

Dr. R. M. Swearingen, State Health Officer of Texas, read a paper on "The Sanitary Relations of Texas and Mexico," which treated at length on the subject of quarantine. He said that Texas was more exposed to small-pox than any State in the Union; that last year there were recorded 1903 cases and 464 deaths in the State. He protested against the State being exposed as it was to this disease, by neglected vaccination.

Dr. J. D. Plunket, of Tennessee, offered a resolution that a committee of the Association be appointed to urge upon

the Congress of the United States the advisability of introducing the studies of physiology and hygiene in the courses at the United States Naval and Military Academies.

Dr. Eduardo Liceaga read a paper on the "Defence of the Seaports and Frontier Cities of Mexico against a Possible Invasion of Cholera."

D. B. Blake, M.D., of Cuero, Tex., read the next paper, "A Modification of Inner Quarantine Regulations as Especially Applied to Epidemics of Yellow-fever."

A paper on "Yellow-fever" was read by Dr. Manuel Carmona, of Mexico.

"Prophylactic against Hydrophobia in Mexico" was the subject of a paper by Dr. Agustin Reyes, of Mexico.

The next paper was on "The Discovery of a New Optical Combination for the Microscope," by Dr. Angel Gavino.

Several ladies were presented and listened to the proceedings with much interest.

The session was adjourned at noon to meet at 3 P.M. in the Preparatory School.

The afternoon session convened at 3.30 at the appointed place, President Formento presiding.

In relation to the paper on yellow-fever, read in the morning by Dr. Manuel Carmona, it was resolved to request the Supreme Board of Health of Mexico to inquire into the reasons for the prevalence of yellow-fever on the Atlantic coast, while it has not appeared on the Pacific seaport but twice during the past century. It was proposed that the surgeons of the army be instructed to investigate the matter.

The first paper was then read by Dr. Juan Ramirez de Arellano on "Croup in the City of Mexico, and Prophylactic Measures against its Growth."

The next paper was read by Mr. Mark W. Harrington, Chief of the Weather Bureau, Washington, D. C., on the "Relations of the Official Weather Service to Sanitary Science." His suggestions were received with much favor, and he closed amid general applause.

It was here suggested that the signal offices of the United States and Mexico be asked for data with a view of its application to sanitation, and that a committee be appointed, with Mr. Harrington as chairman. He consented to serve on such

committee, but thought a physician should be appointed chairman. Dr. H. B. Baker, of Michigan, was named, and by motion appointed.

A paper on "Typhoid-fever" was then read by Dr. Nicolas Ramirez de Arellano, which was discussed at some length by several Mexican physicians.

"Malarious Localities ; How They May be Salubrious," was the subject of an essay by Charles Smart, M.D., Major and Surgeon, U. S. Army. He closed his paper amid the applause of all present.

The President then announced that all members of the Association were invited to witness the inauguration of President Diaz in the Chamber of Deputies at 10 o'clock this morning.

The Congress then adjourned to meet at 3 P.M. to-day at the same place.

UP THE VIGA.

About one hundred and thirty ladies and thirty or forty gentlemen left the Plaza Mayor at 2.10 P.M. for a trip up the Viga Canal. They were in eight cars of the Mexicaltzingo line, and were as happy as people could be at the prospect of a jolly afternoon. The weather was perfect. The programme called for a barge ride from the Embarcadero up the canal to Santa Anita, thence by cars to Mr. Jorge Carmona's Hacienda le Soledad at Ixtapalapa.

Ixtapalapa means the "Hill of the Star." It is famed in Mexican history, tradition, and song. The ancient Aztecs believed that the world ran the risk of coming to an end every fifty-two years. Accordingly at the end of each one of these "cycles" the greatest consternation prevailed. All the earthenware in each house was destroyed, and all the fires were extinguished. Amid the weeping and wailing of the entire community the priests organized a procession to go in canoes to the "Hill of the Star," six miles south of this capital. The procession started from the great Teocalli or temple, where the Cathedral now stands, after nightfall, took boats at the nearest point in the canal and rowed slowly to the foot of the Hill. The summit of the peak was reached shortly before midnight. There, when the constellation of Pleiades

by imposition showed that the eighth hour (midnight) had been reached, the New Fire was lighted on the breast of a slave who had been sacrificed for that purpose. If the two sticks that were rubbed together caught fire and blazed up briskly, the fact was signaled by flaming torches back to the city; and all the fires in the braziers in every house were lighted from the New Fire. The inhabitants immediately gave themselves over to rejoicing, forgetting all their past fears. Their last New Fire was lighted in the year 1507 A.D. The Aztec Empire was assured a life of fifty-two years more at least. Yet a beardless boy from Spain had already landed in Cuba, and a few years later appeared in Mexico with his Centaur soldiers; and on August 12th, 1521, Hernan Cortez added New Spain to the vast dominions of the Emperor Charles V., and the fires of the Aztec Empire were extinct.

Under far different circumstances was the excursion to Ixtapalapa made on this occasion. It was purely for pleasure, and to give the ladies who had come to Mexico an idea of one of those enjoyable Mexican events, a "tamalada." The day was an "Indian-summer" day, and every minute of it was enjoyed to the utmost.

The trip was planned by the Committee of American Ladies residing in Mexico City, of which Mrs. J. B. Phipps is chairman. The sail up the canal was a rare treat to all the happy participants.

Upon their arrival at the grounds the guests were met by mine host, Mr. Carmona, while an orchestra of several pieces discoursed a number of patriotic airs.

After a promenade about the beautiful grounds a sumptuous repast was enjoyed by all present. Before the *menu* had been finished Rev. Dr. Joseph Wild, of Toronto, Canada, made a few well-chosen remarks in grateful acknowledgment of the guests for the generous hospitality extended by the host.

Mr. Carmona replied by saying that in 1847 the Americans came with warlike intent, but now they come here with kind hearts and with sympathy to offer a people of a sister republic.

Three cheers were then given Mr. Carmona for his genuine hospitality and the splendid banquet.

Dr. Montgomery, of Chicago, made a brief address appro-

priate to the occasion, and closed by stating that the gates of the city from which he hailed would be thrown open, not only to our professional friends of the United Mexican States in 1893, but to the lovely women of this noble republic as well, and indeed to the entire world. He promised that Chicago's hospitality will be extended to hundreds of thousands of visitors during the World's Columbian Exposition, and he hoped as many of them as could do so would avail themselves of the opportunity of visiting Chicago at that time.

The party, after a "gran dia de campo," returned to Mexico by moonlight, arriving at 7 o'clock.

Said one of the ladies to the reporter: "The day was grand. The atole and tamales were superb. The tables were set with the finest china. There was an abundance of champagne, excellent music for dancing—and I don't know what we didn't have. The national dance, the jarabe, gave great pleasure to us. All returned in high spirits, as you see. Mr. Carmona was a splendid host."

THE NIGHT'S RECEPTION.

The City Council received the delegates at the Council Room of the Municipal Palace at 8 o'clock.

Although the moon was nearly full, and was shedding its refulgence from a point almost overhead, the electric lights in the principal streets were turned on, to add their brilliant rays in honor of the occasion.

The Cathedral and all the Zocalo were illuminated; two bands in front of the Municipal Palace played till a late hour; the Typical Orchestra inside rendered delicious music; a splendid banquet was spread, and the reception was all that heart could wish.

Mexico is, during the present week, certainly excelling herself in the art of entertainment of her visitors.

The afternoon session convened at 4 o'clock, an hour after the hour set, consequently the reading of several papers had to be omitted.

Several unimportant announcements were made by the local committee of arrangements.

The executive and other committees reported.

There was a discussion on quarantine, followed by a paper

on "Ophthalmia in New-born Children," by Dr. Agustin Chacon, of the Federal District.

The next paper was by Henry F. Hoyt, M.D., of St. Paul, Minn., on "The Collection, Removal, and Disposal of Garbage and Dead Animals at St. Paul."

"Endemic and Epidemic Diseases as Observed in the Gulf Ports of Mexico" was read by Dr. Luis E. Ruiz, of Mexico, after which the session adjourned.

During the early afternoon the delegates and ladies of the party were grouped in the Hotel Iturbide and photographed. Two negatives were taken, both of which proved successful.

During the afternoon the ladies, under the guidance of the local committee of ladies, visited the San Fernando Cemetery. The mausoleum of Juarez and the monuments over the graves of Comonfort, Miramon, Mejia, Guerrero, Zaragoza were viewed, and the decision was that the tomb of Juarez was a work of which any nation might well be proud.

Afterward the ladies and many gentlemen attended the reception at the United States Legation and spent a delightful hour there.

Another party spent the afternoon at Tacubaya, San Angel, and Tizapan.

Another very interesting object visited by the ladies and many of the gentlemen was the Monte de Piedad (or National Pawnshop), and later in the day there was a grand musical entertainment at the Conservatory of Music by a typical orchestra of young ladies and by other musicians.

THIRD DAY—DECEMBER 2D.

The session opened at 9 A.M., President Formento in the chair.

Several reports were rendered by the Executive Committee, followed by a resolution by Medical Director Gihon, U. S. Navy, for the enlargement and continuance of the Committee on Legislation, with special reference to the recent advent of cholera and the necessity of a national health service. It was followed by considerable discussion, and eventually referred to the Executive Committee.

Dr. Griffin, Health Commissioner of Brooklyn, then introduced a resolution which was cordially received, expressing

appreciation of the efficient services of Dr. William T. Jenkins, Health Officer of the Port of New York, who with his able assistants prevented the entry of cholera into the United States last summer and fall. Two hundred and thirty-six cases and 96 deaths were reported at Quarantine, but not one authenticated case in the city of New York. Dr. Griffin was applauded at the conclusion of his remarks.

Dr. Lee introduced a resolution that the Supreme Board of Health of Mexico be requested to furnish the Association statistics regarding virulent fevers peculiar to and most prevalent in Mexico. The resolution was carried without discussion.

Dr. José Ramirez read a paper on the "Water Supply of the City of Mexico."

Dr. Manuel Septien, of Queretaro, read a paper on the "Importance of Hygiene and Convenience of Creating a Sanitary Department."

The afternoon session was opened at 3.45 o'clock, Vice-President Orvañanos in the chair.

The election of officers was immediately proceeded with. Following is the result of the ballots :

President, Dr. S. H. Durgin, of Boston, Mass.

First Vice-President, Dr. Eduardo Liceaga, of Mexico.

Second Vice-President, Dr. Emanuel P. Lachapelle, Montreal, Canada.

Secretary, Dr. Irving A. Watson, Concord, N. H.

Treasurer, Dr. Henry D. Holton, Brattleboro, Vt.

Three new members of Executive Committee : Drs. William Bailey, of Louisville, Ky., Henry F. Hoyt, of St. Paul, Minn., and Mr. Robert F. Gayol, of Mexico.

Short papers were then read by Drs. Adolfo Castañares, George Homan, José M. Benitez, and Jesus Chico.

A large number of papers remain over ; referred to the Committee on Publication. There were in all about seventy papers.

The trip to and inspection of the Drainage Works were alike enjoyable and profitable to all who participated in it. As much may also be said of the reception by the Jockey Club. Indeed, there was no end to the pleasurable surroundings of the meeting from beginning to end.

QUARANTINE AND THE UNITED STATES MARINE HOSPITAL SERVICE.*

By A. N. BELL, A.M., M.D., Brooklyn, N. Y.

THAT every organized government has the right of protecting itself against the introduction of infectious and contagious diseases, and of putting any country, place, or thing in quarantine which would introduce such disease is unquestionable ; but the measure of quarantine has, unfortunately, been so diverse by different authorities from the earliest period of its imposition to the present time, and so inconsistent with even contemporary knowledge of preventable diseases, that, taken in the aggregate, it may well be questioned whether its administration, even at the present time, is not more promotive than preventive of the diseases it would avert. Quarantine regulations of one kind or another are well known to have existed contemporaneously with a knowledge of communicable diseases. To this country they are hereditary. In the seaports of the American colonies they were imposed independently of one another. From the outset of the general Government, the rightful authority for their administration speedily became, and has ever since continued to be, a subject of discussion, resulting in such heterogeneous legislation from time to time, that even the most competent legal authorities appear to be unable to decide whether it is State or national—it is mixed.

In the light of present knowledge of preventive methods against the introduction and spread of infectious and contagious diseases, and the recent indirectness of dealing with cholera at the port of New York, surely the time is now propitious for this Association to urge upon Congress such definite action in this regard as would be alike more reliable against the introduction of preventable disease and less obstructive to commerce than has been the recent action of the mixed authorities at the port of New York.

* Presented at Twentieth Annual Meeting of American Public Health Association, Mexico, December 1st, 1892, and referred to Committee on Publication.

In a paper on *The Need of National Legislation for the Protection of Human Life*, read to another body,* a few months ago, I took occasion to say :

“ This need obtains to a larger degree for the United States than for any other country in the world, because while the States severally have many inherent rights and obligations of their own, and among those rights certainly that of self-protection against dangers to human life, the nation alone has the power to regulate commerce ; and because, related to this commerce, the United States greatly exceeds any other country in the world as the collective centre of all nationalities and habits of life, more or less at variance with the conditions promotive of or in conflict with their own health or of the public health in this country.

“ Commerce, as hitherto conducted in the United States, in default of national legislation to prohibit the introduction of epidemic diseases has been and is in constant antagonism to the efforts of the States and their seaports to prevent their introduction. Hence, it may be truthfully asserted with regard to sanitary progress in this country, that it has not only been made for the most part without the aid of the general Government, but in actual contention against the Government practice in the contrary direction.”

But my present purpose is to deal wholly with quarantine, and particularly with regard to its State, national, and international bearings—a subject, as will presently appear, which I have long thought of.

At the third meeting of the National Quarantine and Sanitary Association, at New York, in 1859, I was made chairman of a committee on the following resolutions :

“ *Resolved*, That the operations of quarantine should not be confined to the warm months of the year ; inasmuch as a vessel, arriving in midwinter, with small-pox or typhus on board, is as legitimate a subject for quarantine as one arriving in midsummer.

“ *Resolved*, That the adoption, by the commercial nations, of a sound and well-digested code of marine hygiene, and of the necessary measures for insuring its strict enforcement, would tend greatly to alleviate the evils of the present system of quarantine, and promote the comfort of passengers and crew.

“ *Resolved*, That this Convention appoint a committee to consider and report in what manner the foregoing resolutions may be most effectually carried out.

* Read in the Section on State Medicine, American Medical Association, at Detroit, Mich., June 8th, 1892.

“ *Resolved*, That the committee report, at the next meeting of this Convention (in Boston, June 14th, 1860), specific recommendations of principles and measures of quarantine, as severally applicable to yellow-fever, cholera, typhus-fever, and small-pox, having reference also to the variations which different localities require.”

My associates were : Drs. Elisha Harris, Wilson Jewell, Isaac A. Nichols, and D. B. Reid. All since deceased. And so, too, a contributory Committee on Quarantine Docks and Warehouses : Drs. John W. Sterling, Alexander H. Stephens, and John McNulty.

The committee reported at the time and place designated in the fourth resolution ; and as the work undertaken was not considered complete, the committee was continued with the same chairman and additional members ; but on account of the rebellion which followed the next year, the meeting at Boston turned out to be the last ever held by that Association. The American Public Health Association is its offspring. Hence, it seems to me eminently proper, as I am the only member of that committee left, at a time when the sanitary sense is more susceptible to its action, and the legislative authorities, it is hoped, more appreciative of the importance of the subject, that I should submit to this Association the benefit—if there be any—of my subsequent reflections upon the work of that committee ; and the more, since the progress of practical sanitation meanwhile has done much more to confirm than to modify the conclusions reached by it.

Indeed, so much more pertinent are the recommendations of that report to the present exigencies of State, national, and international measures for the prevention and spread of epidemic diseases, than they were at the time they were first uttered, taken in conjunction with some success in their practical application, that I feel fully justified in urging them—modified to some extent, however—after thirty-two years’ additional observation and effort, as appropriate to the present time.

The removal of all persons, the complete segregation of persons sick with different infectious or contagious diseases and of both from well persons, *immediately* upon the arrival at port of an infected vessel ; the prompt and thorough disinfection of merchandise and vessels, and their speedy clearance ; the

proper location of quarantine hospitals, places of detention for well persons during the incubative period, and anchorage of infected vessels for the time being, with special reference to mutual safety and without danger to the public—were measures urged no less vehemently at that time than they are now. And with regard to hospitals :

“ Whether erected on the shores, or floating, the number of separate hospitals should be sufficient to give at least one for each of the diseases that are to be provided for at any one period ; and the hospitals should be so arranged as to secure—

- “ 1. Perfect cleanliness.
- “ 2. Ample space for patients.
- “ 3. Complete and controllable ventilation.
- “ 4. The best facilities for the reception and care of the sick.
- “ 5. The requisite means for cleansing and disinfecting bedding and clothing.

“ There can be no better test of the good management of hospitals for pestilent diseases than that the hospital wards be so free from contamination that they do not become infected places. To preserve a typhus-fever or a small-pox ward from infectious contamination, and, consequently, to secure the welfare of its inmates, it is indispensably necessary that the air-space be much greater than has usually been provided in our hospitals. In the wards for cholera and for yellow-fever, the welfare of the sick, if not the safety of attendants, requires a liberal and constant supply of fresh air.

“ To attain such a degree of sanitary security in quarantine or fever hospitals, it is necessary that ample space be allotted to the sick. Not less than two thousand five hundred cubic feet of air-space should be allotted to each patient, unless the facilities for insuring the constant supply of fresh air from without, by means of arrangements for plenum ventilation, be of an unusual character. . . .

“ There cannot be a more highly important regulation in any hospital than that which secures the immediate cleansing of every utensil and every article of personal and hospital clothing, as soon as soiled ; and in the arrangement of a quarantine establishment, none is more essential than that which provides for the immediate and thorough *disinfection* of all articles of clothing, bedding, etc., both from infected vessels and hospital

wards. It is not only desirable, but necessary, that every quarantine establishment should be provided with ample means for effecting such purification and disinfection, as a grand measure of sanitary protection against all personal and common *fomites* of pestilent diseases.

" Notwithstanding the general impression regarding the uncertainty of the ordinary chemical disinfectants, so called, it will not be denied that all articles of clothing may, and certainly ought to be, completely disinfected and thoroughly cleansed by some speedy and effectual process, at every quarantine establishment.

" In the present state of our knowledge respecting the essential nature of these infections, and their relations to physiological and atmospheric chemistry, it is not to be expected that positive chemical disinfectants will be successfully applied ; but we recommend, however, that, for the disinfection of all *fomites* and apartments contaminated with yellow-fever or any other febrile poison, full experiment be made with steam or with dry heat above 200° F., as an effectual mode of disinfection and purification, whenever and to whatever such heat may be safely applied. This recommendation is based upon obvious principles and varied observations that need not be stated here. But suggestions respecting extreme temperatures, forced ventilation, etc., are made solely with reference to the practical applications of reliable means for such processes of disinfection as may readily and effectually be put in requisition in hospitals, contaminated apartments, quarantine warehouses, and infected vessels. And for this purpose the committee recommend :

" *That in connection with every quarantine establishment, at the warehouses as well as at the hospitals, properly constructed steam-generators and steam chambers or vats, be provided for the disinfection of all personal, hospital, and ship's clothing and bedding, together with such other infected goods or things as may properly be subjected to high steam heat.*

" It is also recommended that at every quarantine establishment it shall be an established rule that all articles of clothing, bedding, or dunnage on board of vessels suspected of being contaminated with yellow-fever or cholera, and liable to propagate the same, shall be subjected to high steam or dry heat

for the purpose of disinfection ; and that this duty be attended to as soon as convenient after the arrival of the infected vessel or things ; and especially, that, without such process having been performed, no article or thing whatsoever shall be thrown overboard or otherwise disposed of, except by rapid incineration or by being securely sunken under the water.

“ It is also recommended that in every quarantine hospital it be an established *rule*, that all articles of personal clothing, bedding, and every kind of absorbent material pertaining to the furniture and utensils of the wards, or the care of the sick or the dead, be removed to the steam-vats as soon as they become soiled or contaminated ; and it is further recommended that, in addition to means for ventilation, provision be made for the application of heat, by steam or otherwise, in the wards where pestilential infection is liable to be perpetuated.

“ In the case of *fomites* of small-pox and of typhus-fever, the same rule is recommended to all sanitary authorities, connected either with the internal or the external police of cities.

“ The foregoing suggestions and recommendations embrace the most important measures, which are of essential importance in the executive management of quarantine hospitals ; and all specific regulations that the committee would recommend on this subject may be concisely summed up under the heads of—

“ 1. *Ample air-space and effectual ventilation.*

“ 2. Proper supply and control of sunlight in the wards.

“ 3. Such construction and such material for hospital wards as not to favor the retention and perpetuation of febrile poisons and pestilent emanations.

“ 4. Means for *immediate* and safe disinfection of all clothing, bedding, etc.

“ 5. Facilities for the reception of the sick, and for the removal and burial of the dead without the observation of the patients in the wards.

“ 6. A resident medical officer, who shall have control of the internal management and police of the hospitals.”

It seems almost unnecessary to add that the most important progress made by sanitarians in the means of disinfection during the interval since the report from which the foregoing is an abstract, has been the thorough verification of the utility

of steam, as at that time urged ; and the utility of chemical disinfectants, as reported by the Committee on Disinfection and Disinfectants of this Association in 1888.

But for the purpose of this paper particular attention is invited to the second one of the resolutions quoted.

“ That the adoption, by the commercial nations of a sound and well-digested code of marine hygiene, and of the necessary measures for insuring its strict enforcement, would tend greatly to alleviate the evils of the present system of quarantine and promote the comfort of passengers and crew.”

In virtue of this the following postulates are respectfully submitted, as a basis for national and international quarantine :

I. DECLARATIONS.

1. Every organized government has the right of protecting itself against the introduction of infectious diseases, and of putting any country, place, or thing in quarantine which would introduce infectious diseases ; provided, however, that no sanitary measure shall go so far as to exclude or drive from port a vessel, whatever may be her condition.

2. All quarantine regulations, of any place whatever, should bear with equal force against the toleration or propagation of disease as against its introduction ; and authority to prevent the introduction of disease in any place should be equally applicable against its exportation.

3. The application of quarantine regulations shall be regulated by the official declaration of the constituted sanitary authority at the port of departure where the malady exists. The cessation of these measures shall be determined by a like declaration that the malady has ceased—after, however, the expiration of a fixed delay of thirty days for the plague, fifteen days for yellow-fever, and ten days for cholera.

4. It is obligatory on all vessels to have a BILL OF HEALTH ; this shall consist of two kinds only, a *clean bill* and a *gross bill*, the first for the attested absence of disease, and the second for the attested presence of disease. The bill shall state the hygienic state of the vessel ; and a vessel in a bad condition, even with a clean bill of health, shall be regarded as a vessel having a gross bill, and shall be submitted to the same *régime*.

5. The power of applying the general principles of this

code, and of acceding to its provisions, are expressly reserved to those nations and governments who consent to accept the obligations it imposes ; and all the administrative measures proceeding from it shall be determined by international sanitary regulations, or by a convention of the representatives of the governments which have adopted it.

II. MEASURES RELATING TO DEPARTURE.

6. Measures relating to departure comprise observation, inspection, and the ascertaining of the sanitary state of the place and vicinity ; the examination and ascertaining of the hygienic state of the vessel which is about leaving, of its cargo and provisions, of the health of the crew, and, if there are any passengers, of their health also ; and lastly, of the bill of health, and all relating thereto. These observations, inspections, and examinations shall be confined to the authorities hereinafter designated.

7. All vessels before lading must be visited by a delegate of the sanitary authority, who shall be a doctor of medicine, and submit to hygienic measures, if deemed necessary. The vessel shall be visited in all her parts, and her hygienic state ascertained. The authority shall inquire into the state of the provisions and beverages, in particular of the potable water and the means of preserving it ; he shall also inquire into the state of the crew, and in general into everything relating to the maintenance of health on board. If any person has been shipped, having a transmissible disease, such person shall be forthwith discarded.

8. Captains and masters shall furnish to the sanitary authority all the information and all the evidence, to the best of their knowledge, demanded of them. If the sanitary authority judges necessary, and does not believe himself sufficiently informed by the captain or other persons in charge, he can proceed to a new visit, after the lading of the ship, in order to assure himself if all the prescribed hygienic measures have been observed.

9. These various visits shall be made without delay, and in such a manner as to avoid unnecessary loss to the ship.

10. Vessels carrying a foreign flag shall be visited by the sanitary authority, with the consul or consular agent of the nation to which the vessel belongs.

11. The number of passengers embarking on sailing-vessels or steamers, the arrangement of their accommodations, and the quantity of provisions on board for the probable length of voyage shall be determined by the particular regulations of different governments adopting this code. But in no case should the number of individuals to be accommodated on board any vessel, or in any apartment provided for the accommodation of crew or passengers, exceed in ratio one individual to every one hundred and fifty cubic feet of air space, together with provision for effectual ventilation in all weathers.

12. Passenger vessels of whatever size, and all vessels carrying sixty persons, or a smaller number, including crew, shall furnish themselves with the necessary medicines and apparatus for the treatment of the most ordinary diseases and accidents likely to happen on board. And it shall be the duty of the sanitary administration of each government to make out a catalogue of the medicines and apparatus, and detailed instructions for their use on board all vessels of this class.

13. All sea-going passenger vessels and all vessels having a larger number of persons on board than named in the last preceding article, shall carry a doctor of medicine, approved of by the sanitary authority. Bills of health shall not hereafter be delivered until after the fulfilment of the regulations herein specified.

14. Vessels of the navy and revenue vessels shall not be subject to the preceding regulations.

15. In ordinary times, fishing-vessels, pilot-boats, vessels in the coasting trade, of the same country, and canal-boats, need not carry a bill of health; the sanitary regulations of this class of vessels shall be determined by the local authorities.

16. No vessel shall have more than one bill of health.

17. Bills of health shall be delivered in the name of the local government by the sanitary authority, *viséd* by the consuls or commercial agents, and be of credit in the ports of all governments adopting this code.

18. The bill of health shall contain the name of the vessel, the name of the captain, or master, and the results of the examination, relating to the tonnage, merchandise, crew, and passengers; it shall state the exact sanitary condition of the place, the hygienic state of the ship, and whether there are

any sick on board. In short, the bill shall contain all the information that can enlighten the sanitary authority of the port of destination, to give him as exact an idea as possible of the public health at the place of departure and environs ; of the state of the ship, her cargo, the health of the crew and passengers. The environs are those places in habitual communication with the port of departure, and possessing the same sanitary relations.

19. Whenever there prevails at the place of departure, or in its environs, any epidemic disease reputed to be importable or transmissible, and when the sanitary authority shall have declared its existence, the bill shall give the date of the declaration. It shall give the date of the cessation of the same when the cessation shall have been established.

20. In conformity to the provisions of Article 6, the bill of health must be either *clean* or *gross*. The sanitary authority shall always pronounce upon the existence or non-existence of disease at the port of departure. Doubtful cases shall be interpreted in the most prudent sense—and the bill shall be gross. In regard to passengers, for those whose health may be suspected, the sanitary authority may demand the certificate of a doctor of medicine, known to him to be of good standing, and if any proposed passenger is thus found to be in a condition compromising the healthfulness of the ship or the health of persons on board, he shall, upon the direction of the sanitary authority, be prohibited.

21. Bills of health can only be considered as valid when they have been delivered within the forty-eight hours last preceding departure. If the departure is delayed beyond this period, the bill must be *viséd* by the authority delivering it, stating whatever change may have taken place.

22. The existence of transmissible or importable disease in the quarantine establishment of any place shall not alone be considered cause sufficient for a *gross* bill of health.

III. SANITARY MEASURES DURING THE VOYAGE.

23. All vessels at sea shall be kept in a good state of ventilation and cleanliness. And to this end it shall be the duty of the sanitary authority at the port of departure, to see that every vessel is provided with the necessary means, and that

captains and masters are sufficiently conversant with the use of those means, for the purposes indicated.

24. Captains and masters shall conform to the instructions of the sanitary authority ; otherwise, on arriving, they shall be considered as having a *gross* bill of health, and be treated accordingly.

25. Physicians attached to sea-going vessels shall be considered as the agents of the sanitary authority, and it shall be their special mission to watch the health of the crew and passengers, to see that the rules of hygiene are observed, and, on the arrival of the vessel, to give an account of the circumstances of the voyage. They must also keep an exact record of all circumstances of interest to the public health, meteorological observations, etc., and note with particular care the history and treatment of all the diseases and accidents that occur.

26. In vessels carrying no physician, it shall be the duty of the master or captain to fulfil, as far as practicable, the obligations of the last preceding article.

27. All captains or masters touching at or communicating with a port, shall have their bills of health *viséd* by the sanitary authority ; or, in default of such authority, by the delegated officer of the local police.

28. It is forbidden to the sanitary authority at the port where a vessel touches, or holds communication, to retain the bill of health given at the port of departure.

29. In cases of death at sea from a disease of a suspected character, the wearing apparel and bedding which have been used by the deceased in the course of his sickness, shall be burned if the ship is at anchor ; if *en route*, thrown into the sea, with the necessary precaution that they shall not float. Other articles belonging to the deceased shall be immediately purified by aeration or otherwise.

IV. SANITARY MEASURES ON ARRIVAL.

30. All vessels on arrival shall submit to an examination and questioning as soon as practicable. The examination and questioning shall be made by the sanitary authority delegated for that purpose ; and the result shall be recorded upon a special register.

31. All vessels, furnished with a clean bill of health, which have had during the voyage no disease or communication of a suspected nature, and which present a satisfactory hygienic condition, shall be admitted to *pratique* immediately after examination.

32. All well persons shall be removed from an infected vessel as soon as possible after arrival, to the place of detention, and there kept not longer than five days after the expiration of the accepted period of incubation of the disease to which they have been exposed, excepting small-pox; those who have been exposed to it and have evidence of effectual vaccination, shall be allowed their freedom immediately; those who have not such evidence shall be forthwith vaccinated and detained until the vaccinia shall have taken effect, or in the event of its failure, given their liberty at the end of seven days.

33. Whenever there are sick on board, they shall be removed as promptly as possible from the vessel to clean and airy rooms on shore, or to a floating hospital moored in a healthful situation. The detention of such persons in an infected ship is obviously most objectionable, and should be allowed under no circumstances whatever.

34. The experience of quarantine shows that the fears of pestilential disease being introduced by the ordinary cargoes of dry and imperishable goods is groundless, and that with the temporary exceptions hereinafter provided, such cargoes shall be admitted to *pratique* immediately after examination. Nevertheless, there are numerous articles of commerce which should not be landed except under special restrictions, and apart from all populous neighborhoods.

35. The application of sanitary measures to merchandise shall be arranged in three classes: 1. Merchandise to be submitted to an obligatory quarantine and to purification; 2. Merchandise subject to an optional quarantine; and 3. Merchandise exempt from quarantine.

The first class comprises clothing, bedding, personal baggage, rags, paper, paper-rags, hides, skins, feathers, hair, and all other remains of animals, woollens, and silks.

The second class comprehends cotton, linen, and hemp; and *cattle*.

The third class comprehends all merchandise not enumerated in the other two classes.

36. With a *gross bill* and existing quarantinable disease on board, or if there has been any such disease on board within the ten days last preceding, merchandise of the *first* class shall always be subject to inspection, and to disinfection if deemed necessary. Merchandise of the *second* class may be admitted to *pratique* immediately, or treated according to circumstances, at the option of the sanitary authority, with due regard to the sanitary regulations of the port. Merchandise of the *third* class shall be declared free and admitted without unnecessary delay.

37. A foul ship is much more to be dreaded, as a vehicle of introducing disease, than anything she has on board ; and vessels in a filthy, unwholesome state, whether there has been sickness on board or not, should not be allowed to enter a crowded port, or to lie alongside a wharf or other ships, until they have been broken out, duly cleansed, and ventilated.

38. If a vessel, though furnished with a *clean* bill of health, and having had during the voyage no case of sickness, yet be found in a bad or infected state, or in a condition which the sanitary authority judges compromising to the public health, the vessel and cargo shall be detained until the case has been considered by the authority ; his decision, however, shall be rendered within twenty-four hours.

39. If in the judgment of the sanitary authority the vessel requires it, he may order the following hygienic measures : Baths and other bodily care for the *personnel*, washing or disinfecting means for clothing ; displacement of merchandise, on board or a complete breaking out ; subjection to steam heat at not less than 175° F., for twenty minutes, incineration or submersion at a distance, in the sea, of infected articles ; the destruction of tainted or spoiled food or beverages ; the complete ejection of water ; thorough cleansing of the hold, and the disinfection of the bilge ; in short, the complete cleansing and ventilation of the vessel in all her parts, by the use of force-pumps, steam, under pressure at not less than 175° F., for one hour, washing, rubbing, or scraping, and finally sending to an isolated anchorage ground. Whenever these divers operations are deemed necessary, they shall be executed in

the more or less complete isolation of the vessel, according to circumstances, but always before admission to *pratique*.

40. All vessels having no bill of health, which, by reason of the place from whence they came, could not obtain one, or in case of accidental loss of bill, shall submit to restrictions according to circumstances, depending upon the judgment of the sanitary authority, in conformity with the provisions herein established.

41. All bills showing evidence of erasure or alteration shall be considered null, and shall incur the conditions of the last preceding article, without prejudice to the proceedings which may be instituted against the authors of the alterations.

42. A doubtful case, reported in an unsatisfactory manner, shall always be interpreted in the most prudent sense: the vessel shall be provisionally detained.

43. Admission to *pratique* shall be preceded by as many visits to the vessel as the sanitary authority may judge necessary.

44. No vessel can be put in quarantine, without a stated decision of the sanitary authority, which shall be rendered within twenty-four hours from the time of arrival. The captain or master of the vessel shall be informed immediately after of this decision.

45. Besides the specific measures in the foregoing regulations, the sanitary authority of each country or port has the right, according to Article 1, in the presence of immediate danger, to take the responsibility of applying such additional measures as may be deemed indispensable for the protection of public health.

46. Notwithstanding the preceding regulations, whenever the sanitary state is positively healthy, vessels going from one port to another in the same country can, in virtue of the particular sanitary regulations of each country, be freed from sanitary examinations. And, in ordinary times, by virtue of declarations exchanged between the contracting nations, all vessels, proceeding or intending to proceed from one of two countries to the ports of the other, may also be free from examination.

V. EXECUTIVE ARRANGEMENTS.

47. Every seaport town requiring the obligations of quarantine, should have a quarantine hospital for sick persons ; a place of detention for well persons during the period of incubation ; a disinfection plant, and a designated anchorage ground for infected vessels ; these several parts of the establishment shall be at such a distance and direction from each other, and all populous neighborhoods, infectious and infectable places, as to endanger the life of no one.

48. On the arrival of infected vessels at the quarantine establishment, all well persons shall be admitted to *pratique* as soon as possibly consistent with the foregoing regulations ; sick persons shall be immediately transferred to the quarantine hospital, or to hospital ships, and the vessel unladen as soon as practicable. All infected merchandise not capable of immediate disinfection by ordinary means, shall be placed in capacious, perfectly secure and well-ventilated warehouses or sheds, and there freely exposed to the air, and moved from time to time to insure its perfect disinfection.

49. Merchandise of the first class (Article 35) shall be submitted to such measures of purification as the sanitary authority shall judge necessary. No putrefied animal or vegetable substances, or substances likely to putrefy, shall be admitted into the warehouses. All such substances shall be rendered innocuous or destroyed.

50. All governments and places adopting this code shall as soon as practicable provide the necessary arrangements and appurtenances for fulfilling the obligations it imposes.

51. In case of the arrival of infected vessels at a port not provided with a quarantine establishment, vessels or hulks may be appropriated to the service of the sick, and also for the reception of merchandise ; but in such cases they shall be disposed in such a manner as will permit the separation of the sick and assure the best conditions of hygiene, especially ventilation. But under no circumstances whatever shall sick persons be kept in proximity with infected goods. Well persons shall have their liberties as soon as practicable, consistent with the preceding regulations ; and all other measures essential for the protection of public health, shall be instituted

according to the exigencies of the case, provided they are not inconsistent with the tenor and spirit of these regulations.

VI. SANITARY AUTHORITIES.

52. Sanitary authorities shall be established upon a uniform basis by the countries or governments adopting this code, and shall be composed : First, of a responsible agent of the government, who shall be a doctor of medicine ; and, second, of a local sanitary council or board of health.

On the acceptance of the report, from which the above is a revision, by the Convention to which it was submitted, at the request of the committee the following resolution was adopted :

“ Resolved, That this report be referred back to the committee with directions to negotiate with our National Government or Department of State, to secure, by convention or otherwise, the national and international adoption of a code based upon the principles hereinbefore set forth.”

It was apparent to the chief authors of that report, the late Dr. Elisha Harris and myself, that the resolution which has just been read would at least be fruitless for many years. In the United States the report had no basis whatever to stand upon. “ Sanitary authority,” as related to practical effect, were words devoid of meaning. Such a thing as a national board of health had not been thought of ; not until fourteen years thereafter was our first State board organized ; the only boards of health among us were common council or aldermanic committees, of our large cities, with “ health wardens” for inspectors, whose competency may be judged of by the following extract from the address, by Hon. Andrew D. White, at the first annual meeting of this Association, in New York, 1873.

“ It is,” he said, “ now about five years since, with two other members of our State Senate, I visited this city, and sat here in the commission for examining into certain branches of the city administration, and especially into the conduct of that branch which had charge of the public health. The state of things revealed was such as could only exist under a great and widespread ignorance on the part of citizens of the first principles of sanitary science. To give an idea of this igno-

rance, let me recall, as nearly as I can, a little episode in the investigation. It happened that the late Judge Whiting, who had charge of the investigation on the part of the Citizens' Association, put on the stand a young physician, who testified that the health officers, or wardens, or inspectors, were men utterly ignorant of the first principles relating to the public health which they were appointed to preserve. In order to refute this, the head of the Health Department at the time brought on the stand, in perfect good faith, several of these health officers. Toward the close of the examination of the first of these gentlemen, Judge Whiting asked this question: 'Did you have a case of small-pox in your ward?' and he answered, 'Yes, sir.' Judge Whiting: 'Did you visit the patient?' Witness: 'No, sir.' Judge Whiting: 'Why not?' Witness: 'For the same reason that you would not—that I was afraid of taking it myself.' Judge Whiting: 'Did the family have any care?' Witness: 'Yes, sir; they were highjinnicks' (hygienics); 'they doctored themselves.' As the other witnesses came in Judge Whiting used this as a sort of test question—as a sort of key to unlock the system, and show the utter ignorance that prevailed in every department of it. Every witness was asked: 'Well, have you any highjinnicks in your ward?' Some of the witnesses thought they had, some thought they had not, some thought they 'had them pretty badly,' some thought they 'had them in some parts of the ward,' some thought they 'had them in other parts of the ward.' At last the judge asked a witness who had been answering his question in this way: 'Do you know what the word highjinnicks means?' and he replied, 'Yes, sir, I do! It means a bad smell arising from dirty water.' '* *

This illustration of the kind of sanitary authority and its agents, in New York, *seven years subsequent* to the time that the Committee of the National Quarantine and Sanitary Convention was directed to treat with such bodies, is not a far-fetched example. Similar boards were common to our larger cities; in the smaller ones and in county towns there was no sanitary pretense whatever. Among foreign countries England stood almost alone, and her General Board of Health at

that time was only twelve years old. In short, the essential condition for carrying out the purpose of the resolution, the existence of sanitary authorities, was almost wholly wanting. Quarantines there were in abundance at seaports throughout the world—according to the significance of the term—which the General Board of Health promptly renounced, and instituted energetic sanitation instead ; and—in so far as the word quarantine is still used to indicate the prompt notification and segregation of persons ill with communicable diseases, and the restriction until purification, or destruction, of infected material is now everywhere practised by enlightened communities, as first instituted by the General Board of Health of England—such quarantines have been multiplied a thousandfold. In the United States, as elsewhere, it is an essential element of preventive medicine, incorporated with every State and local board of health, inland no less generally than on the seaboard, and with like energy. Sanitary authorities have multiplied in like proportion, and their co-operation is essential to the protection of the public health ; but the pre-eminent need in the United States is a concentrating force, a *national* sanitary authority, whose duty it should be to maintain a periscopic view, to anticipate danger, give warning, and promptly supply aid whenever and wherever it is required.

At the outset the United States essayed to aid the seaports by providing hospitals for those sick with infectious diseases, and warehouses for infected merchandise. The United States Marine Hospital Service was a contemporary provision, “ for the relief of sick and disabled seamen.”

To understand how greatly the scope of this service has magnified during recent years, if exercised for the prevention of disease among seamen, a glance should be taken at the enormous and still increasing commerce on the inland waterways of the United States, as compared with the seaboard. In 1890 the arrivals and clearances of vessels at Chicago amounted to 21,541, while those of New York numbered only 15,283. The total entries and clearances of the entire seaboard of the United States, according to the statistical records, were 37,756 vessels, while the arrivals and clearances of vessels at the ports of the great lakes numbered 88,280.

“ Seamen,” under the purview of the Marine Hospital Ser-

vice, comprehends "all persons employed on board in the care, preservation, or navigation of any vessel, or in the service, on board, of those engaged in such care, preservation, or navigation." Yet, in default of any record to the contrary, this enormous aggregate of vessels of every class and the needful supplies for the well-being of the thousands of men, women, and children employed on board in the navigation, care, service, and keeping of them, was wholly without sanitary inspection! And so, too, every *clearance* of the smaller number—but yet thousands—of vessels from the seaboard: *all* are allowed to *depart* without any sanitary supervision with regard to the necessary conditions for maintaining the health of the seamen and passengers or their liability to introduce disease at their ports of destination.

"Quarantine" measures relating to departure, under the light of such knowledge, should be at least co-ordinate with those exercised at ports of arrival; and all the more with regard to clearances at our seaports, if we would secure the co-operation of sanitary authorities abroad to prevent the transportation of infectious diseases hither.

The United States Marine Hospital Service, in default of a national organization, has done some excellent work for the prevention of the transportation of yellow-fever hither from Havana, but it has been wholly dependent upon the courtesy of the civil authorities at that port. For certainly it must be well known to all persons conversant with the exclusive rights and practice of foreign nations, that such sanitary service is essentially unstable, ever liable to conflict with the sanitary authorities at ports of departure, and cannot be relied upon to prohibit the departure of an infected ship. The Marine Hospital Service is out of its sphere in this direction, while there is an open field for its labors in another, if the United States would set the example by practising its own precepts—would see to it that the condition of *every vessel*, before she is permitted to receive cargo, is *clean* and equipped in a sanitary sense, and not at the mere voice of her master.

Surely it would be difficult to designate a more inviting field of labor—certainly none more germane to all that pertains to the health of "seamen" or passengers—than this for the Marine Hospital Service.

With such co-operation as this suggestion contemplates, under the auspices of a national board of health, and the international sanitary service which it would then be certain to secure, the transmission of epidemic diseases by commerce would be greatly diminished, if not, indeed, wholly prevented.

THE NEW YORK BOARD OF HEALTH'S PREPARATIONS AGAINST CHOLERA.

AT a meeting of the New York Academy of Medicine held on the 20th inst. the following report was submitted :

“ The Committee of Conference of the New York Academy of Medicine, with the Board of Health, respectfully submit the following report :

“ On September 20th the committee received the following communications :

“ ‘ HEALTH DEPARTMENT, 301 MOTT STREET, }
“ ‘ NEW YORK, September 16, 1892. }

“ ‘ DR. STEPHEN SMITH, *President pro tem.*, Conference Committee,

“ ‘ Academy of Medicine,

“ ‘ 574 Madison Avenue, New York.

“ ‘ SIR : At a meeting of the Board of Health of the Health Department held on the 14th inst., on motion of President Wilson, it was

“ ‘ *Resolved*, That the president of this board be and is hereby authorized to invite the Academy of Medicine to examine, through its Conference Committee and others, the preparations made by this department for the care and treatment of cholera patients in this city, and to confer with the Board of Health in respect to measures necessary to prevent the spread of the disease.

“ ‘ EMMONS CLARK, *Secretary.*’

“ ‘ HEALTH DEPARTMENT OF THE CITY OF NEW YORK, }
“ ‘ No 301 MOTT STREET, }
“ ‘ NEW YORK, September 19, 1892. }

“ ‘ DR. STEPHEN SMITH, *President pro tem.*, Conference Committee,

“ ‘ Academy of Medicine,

“ ‘ 574 Madison Avenue, New York City.

“ ‘ SIR : Having been authorized by the Board of Health

to invite the Academy of Medicine, through its Conference Committee, to examine the preparations made by this department for the care and treatment of cholera patients, and to confer with the Board of Health in respect to measures necessary to prevent the spread of the disease, I respectfully extend such invitation to the Conference Committee of the Academy of Medicine, and should be pleased to be informed at what time and place it would be convenient and agreeable for the committee to meet this board and others.

“ ‘ Very respectfully,

“ ‘ CHARLES GEORGE WILSON, *President.*’

“ In compliance with this invitation your committee met the members of the Board of Health and others on September 28th at the Willard Parker Hospital. Commissioner Bryant explained at length the preparations which the board had made with reference to the apprehended appearance of cholera in the city. These consist of : 1. Organization of a corps of medical inspectors for the immediate care of each case of cholera and of the well persons who may be exposed to the disease. 2. Ambulance service for the immediate removal of the sick to the hospital. 3. Disinfecting corps to clean the room and disinfect clothing.

“ In practice, on information being given of the location of a case of cholera, a detail of physicians at once visits the house and takes charge of the premises. If the sick person must be removed they attend to his being placed in the ambulance, and one accompanies him to the hospital. Others attend to the isolation of the family in the room and of the families in the house, and maintain a strict watch over all persons who may have come within the limits of infection during the period of possible liability to the disease. The disinfecting corps burns all soiled and useless clothing, and disinfects by boiling water all articles to be preserved which can be thus treated. The floors and furniture and all closets and exposed areas or passage-ways are washed with sublimate solutions. During the possible period for the incubation of the disease the premises are rigorously quarantined and constant medical inspection of all exposed families is made to discover any cases of diarrhoea. If the immediate family of the sick person is

destitute, it is removed to the hospital and the members are regarded as 'suspects,' who require constant watch and care.

"For hospital purposes the board has secured and fitted up the floating hospital of St. John's Guild, which lies at the foot of Sixteenth Street, East River.

"The Disinfecting Department is under the direction of Dr. Biggs, and when some improvements are completed it will answer every purpose required.

"The president, Commissioner Wilson, submitted plans for a new reception hospital, which were laid over for future consideration.

"The committee then personally examined the floating hospital and all of its arrangements for treating the sick, the isolation of cases, the handling and care of clothing and bedding, the methods of preparing and serving food, etc. The disinfecting plant was then visited, and the methods of treating infected materials were explained by Dr. Biggs.

"On October 4th the committee again met the commissioners in conference on the plans of the proposed new reception hospital. It was then learned that the Board of Health had deficient hospital accommodations on the grounds now occupied, and that it was possible to obtain additional area on the same block from the city.

"The committee submits the following conclusions as the result of this conference :

"1. The organization which the Board of Health has perfected to deal effectively with cholera meets our cordial approval. We do not believe that cholera can prevail widely in this city if the methods adopted are energetically applied to the early cases. The success which has already attended this plan of treating individual cases gives the most gratifying evidence of its utility.

"2. The hospital accommodations on the St. John's Guild vessel are admirably arranged for the comfort and successful treatment of patients and the protection of the public from infection.

"3. The disinfecting service, under the supervision and direction of Dr. Biggs, is ample for any emergency, and will apply disinfection by all the most reliable means known to science.

"4. The committee indorses the proposition of the Board of Health to enlarge their permanent hospital accommodations at Sixteenth Street and East River, and urgently recommends that the proper authorities of the city be immediately applied to for the purpose of having the required lands set apart for that purpose.

"Respectfully submitted,

[Signed.] "STEPHEN SMITH, M.D., *Chairman*.

"EDWARD G. JANEWAY, M.D.

"A. JACOBI, M.D.

"RICHARD H. DERBY, M.D., *Secretary*.

"October 6, 1892."

CHOLERA is given to dogs through venous injection by the same experimenter. The *Gazette Hebdomadaire* says, if the substance injected is too weak to kill them, it secures for these animals immunity against the disease.

M. Haffkin has not been satisfied with *vaccinating* dogs as a means of preventing cholera, he has inoculated himself with the same prophylactic agent, and also three other persons who were willing to submit to the operation. He thinks that in six days after the inoculation with his virus he will have secured for the person complete immunity against the disease. What will be the fate of this vaccination? We cannot foretell. The anti-choleraic vaccinations practised in Spain, the vaccinations against yellow-fever in Brazil, have not, so far, been attended by any satisfactory results. Will this be the fate of these experiments?

The use of the term vaccination and other derivatives from the same root is exceedingly objectionable in this and similar cases. It is unscientific, unphilological, and untrue in point of fact.

"THE PROTECTION OF THE PUBLIC HEALTH," says Bishop ("Criminal Law," Sec. 489) "is an interest of the first importance to every government. Without health the members of a community cannot discharge duties either to the government or to one another. Therefore anything of sufficient magnitude for the law's notice, calculated to impair the public health, is indicatable at the common law."

HAMBURG WATER.

By JOHN B. COPPOCK, F.C.S., Analyst to the London Water Co.

THE spread of cholera at Hamburg has been one of the most noticeable points in the present cholera scare.

The connection between cholera and its diffusion in a polluted water medium has been strengthened and developed by many remarkable outbreaks extending over the last thirty years. The ravages of the disease have been shown to be coincident in time and space with the use of water from impure wells, the introduction of a pure and fresh supply bringing about the abatement of the outbreak.

Whether cholera can be produced by animal organic matters not of a specific nature has not yet been proved, but it has been proved that a polluted water supply is a splendid medium for the propagation of the cholera poison; anyhow, the endemic area of cholera approximates very closely to the area supplied with a polluted water.

By the kindness of a friend I have been enabled to get a sample of Hamburg water, taken from the mains by an ordinary tap, just as it is supplied for drinking purposes to the houses. The water gave the following results:

PHYSICAL EXAMINATION.

Appearance.....	Turbid, very yellow.
Taste.....	Slightly unpleasant.
Odor.....	Extremely small.
Deposit.....	Small, dirty looking.

MICROSCOPIC EXAMINATION.

Animal and vegetable matters.. Inorganic particles.

QUANTITATIVE RESULTS (MEAN OF TWO ANALYSES).

Total solids.....	81.25 grains per gal.
Chlorine	33.04 "
Free ammonia.....	0.0746 "
Albumenoid ammonia.....	0.0205 "
Sulphates	2.37 "
Nitrates	1.95 "
Oxygen (consumed in 15 minutes).	0.065 "
" (consumed in 4 hours)....	0.24 "

Cultivation in nutrient gelatine produced the usual crop of bacteria, bacilli, micrococci, and fungi, but the consumption of the water has not produced any choleraic symptoms in a cat. The water is very likely not specifically polluted, it producing a lowered state of the system and tendency to diarrhœa, favorable to the specific contagion. As the water is originally taken from the Elbe, it may with fairness be described as little short of "dilute sewage." The Senate of Hamburg is going to be asked to authorize the immediate construction of artesian wells for the production of a pure water supply—not too soon to take such steps in the present condition. A better water supply might have saved Hamburg from the present epidemic.—*Chemical News.*

ERRORS IN VENTILATION.

By WILLIAM HENRY THAYER, M.D., Berkshire, Mass.

IN the September SANITARIAN Dr. R. Harvey Reed contributes a reply to my communications of April and July, on the subject of "Errors in Ventilation." His arguments are based upon analyses of the air of many school-rooms; and he virtually withdraws his previous statement, upon which my own articles were founded—the statement that "the cool air remains at the bottom of the room, with a large percentage of the foul air or carbonic acid, while the hot air, with a certain percentage of the carbonic acid, escapes at the top of the room or window."

My contention was that this statement of Dr. Reed's is an error, which I endeavored to show by the evidence of our senses in rooms with top ventilation, as, notably, in the fine hall of the Brooklyn Institute, and by citation of good authorities from 1840 to 1875. Of these he says that I attempt to fortify my assertions "by old, antiquated quotations that have long since been not only obsolete, but proven false." I cannot see the force of such a statement or understand on what ground he assumes that well-known chemists and physi-

cists of any part of the nineteenth century are unreliable. Some scientific theories may have been refuted, but the reports of careful analyses are not to be brushed aside by any one's assertion that they are false and obsolete. The report of Dr. R. Cresson Stiles to the Metropolitan Board of Health (New York) in 1869, of the analyses of the air of numerous public rooms—school-houses, churches and theatres—in Brooklyn and New York City, is worth as much as that of any other man at any period.

Dr. Reed now says, in the September *SANITARIAN* (p. 222), "The average result [of my investigations] shows beyond a doubt that the difference between the amount of carbonic acid found at the floor and the amount found at the ceiling in school-rooms, ventilated by either system, is practically so near the same that it is scarcely worth the time it takes to discuss it, so far as the practical distribution of the carbonic acid is concerned." And, "It seems to me" (p. 220) "that this investigation ought to settle the problem regarding the location of the $C O_2$ in the school-rooms of to-day, and especially those that are heated artificially, and to prove beyond a shadow of a doubt that $C O_2$ is an omnipresent factor in practically the same relative proportions at all levels of a school-room, whether ventilated at the top, sides, bottom, or all." In these statements he deliberately withdraws from the ground he held in his previous publications and letters, which was the whole basis of my contention. And the matter might be dropped here; but as he pronounced my authorities obsolete and false, it is worth while to offer a few of the very late ones.

W. C. Van Bibber, M.D., says in a "Report on Ventilation" made to the Maryland State Board of Health in 1878: "How the outward current shall be established is the point of discussion of the practical men of the present day. With us, Mr. Winans and Mr. Neilson, the architect of the Academy of Music, establish the current from below upward, and carry the damaged air up and directly out of the top of the house. The architect of the Cook County Hospital of Chicago and a number of others draw the air by suction from a point near the floor, after the carbonic acid is supposed to have fallen. The Bayview Hospital of Baltimore is built with the floor ventilation, and is not a success. . . . The upward current, estab-

lished by a proper opening at the top of the house, is the most simple, efficient, and economical" (pp. 11, 12).

Alfred R. Wolff, M.E., in a late pamphlet on "The Ventilation of Buildings," says, after describing the general requisites of house ventilation: "In one important particular we would have left an erroneous impression—viz., as if the air within the room were composed of two layers or divisions, the one the vitiated air, the other the pure air, and that the vitiated air (popularly presumed to be the heavier, and, accordingly, the bottom division) could be removed in bulk, leaving the room filled with air of original purity. The mere mention of the law of the diffusion of gases will suffice to dispel this erroneous view, so widely circulated among laymen of all classes, and held by not a few architects, physicians, builders, and others, who have a directing voice in matters affecting the proper ventilation of buildings."

A. N. Bell, M.D., in his Merritt H. Cash Prize Essay, 1887, says: "The ascent of foul air to the top of occupied rooms dictates the direction of the easiest means of exit" (p. 74).

P. Caldwell Smith, M.A., M.D., Cambridge, in a paper on "School Hygiene," read to a branch of the Educational Institute of Scotland, 1892, says, while speaking of the ventilation of buildings: "Outlets should be placed at the roof, and the tubes, as far as possible, be straight. . . . Another form of outlet sometimes used in schools is that called the under-ridge ventilator. Valves are provided which shut on windward side, but are open on leeward" (THE SANITARIAN for September, pp. 279, 280).

In the London *Analyst* for October, 1892, is a contribution by Augustus H. Gill, Ph.D., in which he gives "the distribution of carbon dioxide in an ordinary theatre as follows:

Floor.....	39.13	parts of C O ₂ per 10,000
First Balcony.....	42.86	" " "
Second Balcony.....	44.72	" " "
Gallery	48.94	" " "

Dr. Reed says (p. 209), "We know that where three candles of three different heights are placed in a tight box and all lighted at the same time, that the shortest candle will go out first, the next longest second, and the tallest last, owing to

the fact that the carbonic acid gradually accumulates at the bottom of the tight box, and as it fills the box extinguishes one candle after another." I do not know where this statement originated, but it is not sustained by experiment. In repeated trials, made by myself, of three candles at different heights in an air-tight bell glass, the uppermost candle was extinguished first, then the middle one, and last the lowest. In a text-book on "The Elements of Physics," by Alfred P. Gage, A.M., Instructor in Physics in the English High School, Boston, Mass., published in 1883, the author describes the experiment as follows: "In the centre of a small circular plank insert an iron wire [perpendicularly] 60 cm. long and 7 mm. in diameter. At intervals of 9 cm. solder to this wire short pieces of small wire, so as to project horizontally from the large wire, and to the free extremities of these short wires solder small circular pieces of tin 3 cm. in diameter. Arrange these little platforms spirally around the vertical wire. Fix stumps of candles upon these platforms. Light the candles and carefully cover the whole with a tall glass jar. Heated air, from which the oxygen has been largely extracted and replaced by carbonic acid, accumulates at the top of the jar, and the highest candle is quickly extinguished. The colder and purer air descends and feeds the lower flames, while flame after flame, from the top downward, is successively extinguished, the lowest flame being the last to go out" (p. 146).

Dr. Reed says (p. 222) that, in comparison with over 230 analyses made by him, the single analysis made by Dr. Bartley of the air of St. Ann's Church, in Brooklyn, "given without the associated circumstances, really proves nothing to any unbiassed, thinking person." All the circumstances were given in the two papers in April and July. The church was selected to illustrate the results of floor ventilation, of which it was supposed to be a typical specimen; but a second examination, described in the July paper, proved it to be a building without any ventilation whatever; consequently a fair specimen of the condition of the air at different heights in a close room, very bad everywhere, but having twice as much carbon dioxide in the gallery as near the floor.

In the school-rooms examined by Dr. Reed, as in most rooms while occupied, and with some inlets and outlets, the

air was stirred by various currents, so that in some cases the excess of carbon dioxide was at the floor, and this especially at the front of the room (by which I suppose is meant the end where the doors are); but it was almost everywhere too foul to indicate proper ventilation, and the methods used cannot, therefore, be adduced as satisfactory.

The practical question is, of course, where the outlets for foul air shall be. To place them at the level of the floor, because there it is in excess, is shown to be absurd. The only sound objection to roof- or ceiling ventilation is the waste of heat—not a valid objection when the outlet is under control. To have outlets both at the ceiling and the floor, allowing the use of one or the other according to the season and the temperature, is a plan frequently adopted and approved.

THE STATUS OF SANITATION IN THE UNITED STATES AS INDICATED BY THE MOST RECENT OFFICIAL REPORTS AND OTHER SOURCES OF INFORMATION.

By HARRY KENT BELL, M.D.

THE ATTENTION OF CORRESPONDENTS, under this head, is particularly invited to the following extract from the November *Bulletin*, North Carolina Board :

“ It is evident that the fresher the sanitary news it contains the more valuable it is. If anything is to be done, the very fact that it is done promptly adds to its effectiveness. . . . Unless the matter is on hand it certainly cannot be published.

“ The frequent occurrence of ‘ No report ’ shows an amount of carelessness or indifference that must appear to our readers as very discreditable. It looks so thriftless and ‘ slack twisted,’ as the old-time folk would say, that we should not longer make such an exhibition of ourselves to other Health Boards and sanitarians generally to whom the *Bulletin* goes”—as also THE SANITARIAN.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076 : T. S. Scales, M.D., Health Officer, reports for the month of September a total mortality of 66, of which number 20 were under five years of age, and 47 were colored.

The annual death-rate was 25.44 per 1000. There were 15 deaths from zymotic diseases, and 9 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento, reports :

Mortality reports from 119 cities, towns, villages, and sanitary districts, having an aggregate population of 838,169, show 965 deaths from all causes during September. This corresponds to a death-rate of 1.15 per 1000, or 13.80 per annum.

There were 132 deaths due to consumption, 39 to pneumonia, 23 to bronchitis, 9 to congestion of the lungs, 20 to diarrhoea and dysentery, 38 to cholera infantum, 53 to other diseases of the stomach and bowels, 30 to diphtheria, 10 to scarlatina, 9 to whooping-cough, 24 to typhoid-fever, 9 to malarial fevers, 9 to cerebro-spinal-fever, 2 to erysipelas, 27 to cancer, 72 to diseases of the heart, 6 to alcoholism, and 439 to other causes.

San Francisco, 330,000 : J. W. Keeney, M.D., Health Officer, reports : The total number of deaths during the month of September was 468—136 under five years of age, and 24 among the Chinese. The annual death-rate per 1000 was 16.92. There were 68 deaths from zymotic diseases, and 61 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, reports in the *Monthly Bulletin* :

The mortality report for September has been received from 164 towns in the State.

There were 1064 deaths reported during the month. This was 360 less than in August ; it was 41 less than in September, 1891, and 26 more than the average number of deaths in September for the five years preceding the present.

There were 327 deaths under five years of age. The death-rate was 16.6 for the large towns and 15.7 for the small towns, and 16.3 for the whole State. The deaths from zymotic diseases were 317, being 29.7 per cent of the total mortality against 41.4 per cent in August. The deaths from consumption numbered 111.

New Haven, 86,000 : F. W. Wright, M.D., reports for the month of September 122 deaths—54 under five years of age—representing an annual death-rate of 15.10 per 1000. Thirty-eight deaths were from zymotic diseases, and 20 from consumption.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for four weeks ending October 22d, a mortality of 499, of which number 217 were of colored people, and 179 were under five years of age. The annual death-rate was 24.9 per 1000. There were 80 deaths from zymotic diseases, and 48 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Pensacola, 15,000 : R. W. Hargis, M.D., President, reports for the month of September 23 deaths, of which number 7 were under the age of five years. The annual death-rate was 18.4 per 1000. There were nine deaths from zymotic diseases, and one only from consumption.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Evansville, 50,756 : L. Worsham, M.D., reports for September 72 deaths, of which number 27 were under five years of age.

Annual death-rate 16.8 per 1000.

There were 26 deaths from zymotic diseases, and 9 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for September as follows :

Burlington, 30,166 : Total deaths, 12. Annual death-rate per 1000, 4.68.

Council Bluffs, 35,000 : Total deaths, 18. Annual death-rate per 1000, 6.60.

Des Moines, 62,000 : Total deaths, 80. Annual death-rate per 1000, 12.12.

Dubuque, 35,000 : Total deaths, 23. Annual death-rate per 1000, 7.2.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored : There were reported for four weeks ending October 8th 500 deaths, of which number 181 were among the colored people, and 108 of children under five years of age. There were 85 deaths due to zymotic diseases, and 99 to consumption. The annual death-rate was 25.67 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 833 deaths reported in September, of which number 322 were under five years of age. The annual death-rate per 1000 was 21.28. There were 164 deaths from zymotic diseases, and 109 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of October, 1892, compared with the preceding month, the reports indicate that measles, puerperal fever, inflammation of kidney, pneumonia, diphtheria, and tonsillitis increased, and that inflammation of brain, whooping-

cough, cholera morbus, cholera infantum, dysentery, and diarrhoea decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was the same (southwest), the velocity was greater, the temperature was lower, the rainfall at Lansing was 1.77 inches less, the absolute and the relative humidity were less, the day ozone was less, the night ozone was more, and the height of ground above the water in the well at Lansing was four inches more.

Compared with the average for the month of October in the six years 1886-91, small-pox, inflammation of brain, whooping-cough, typho-malarial-fever, cerebro-spinal meningitis, membranous croup, puerperal fever, dysentery, influenza, intermittent-fever, pleuritis, erysipelas, remittent-fever, and measles were less prevalent in October, 1892.

For the month of October, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was southwest (instead of northwest), the velocity was less, the temperature was higher, the rainfall at Lansing was 1.13 inches less, the absolute humidity was more, the relative humidity was slightly less, the day and the night ozone were much less, and the height of ground above the water in the well at Lansing was two inches more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of October, 1892, at sixty-three places; scarlet-fever, fifty-six; typhoid-fever, one hundred and four, and measles at nine places.

Reports from all sources show diphtheria reported at twenty-one places more; scarlet-fever, at ten places less; typhoid-fever at six places less, and measles at six places more in the month of October, 1892, than in the preceding month.

Detroit, 230,000: S. P. Duffield, M.D., Health Officer, reports for the month of September 392 deaths, of which number 116 were under five years of age. The annual death-rate was 20.73 per 1000. The deaths from zymotic diseases numbered 141, and from consumption, 37.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing. *St. Paul*, 150,000: H. F. Hoyt, M.D., Commissioner of Health, reports for the month of September 110 deaths, of

which number 58 were under five years of age. Annual death-rate per 1000, 8.8. Zymotic diseases caused 30 deaths, and consumption 5.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716: E. R. Lewis, M.D., Sanitary Superintendent, reports that there were 143 deaths during the month of September, of which number 59 were under five years of age. Annual death-rate per 1000, 12.9. Zymotic diseases caused 26 deaths, and consumption, 11.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 292,574: C. J. Rooney, Jr., Clerk, reports for the month of September a mortality of 481, of which number 224 were under five years of age. The annual death-rate per 1000 was 19.7. There were 110 deaths from zymotic diseases, and 56 from consumption.

Paterson, 85,386: J. L. Leal, M.D., reports for September 147 deaths, of which number 56 were under five years of age. The annual death-rate was 20.6. There were 37 deaths from zymotic diseases, and 15 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows:

The 9559 deaths reported during September represent an average daily mortality of 319, against 352 in August and 322 in September, 1891. The infant mortality is 31 per cent of the total mortality, that of August being 45.2, and of September, 1891, 41.2 per cent. The entire zymotic mortality is 2266, against 3182 in August, and 2388 in September, 1891. From diarrrhœal diseases there were about one half the number of deaths of the month preceding, and a smaller number than in the corresponding month of last year; they still constitute more than 13 per cent of the entire mortality; over one half

of the deaths occurred in the maritime district. Typhoid-fever has increased by about 100 deaths, which is not above the customary. Scarlet-fever shows no material variation, having decreased very much since the last two months; outbreaks are reported from High Falls, Adams and Stratford, Fulton County. Diphtheria has caused 100 more deaths than in August, which increase occurred likewise last year; Gaines, Port Henry and Hoosick Falls report its prevalence. Three deaths from small-pox are reported from Long Island City. Cases of suspected Asiatic cholera in North Tonawanda have been proven not to have been of that nature, on bacteriological examination. The rural portions of the State, out of 1774 deaths, had 407 deaths from zymotic diseases, or nearly 23 per cent, which is but a little lower than the proportion for the cities and villages. Of these, 68 were from typhoid-fever and 42 from diphtheria, a percentage, respectively, of 3.83 and 2.37 of the total mortality. The urban population shows a percentage of 1.46 for typhoid-fever, and 4.20 for diphtheria of the total mortality, showing a large preponderance of the latter in the cities, and a small in the country, as compared with the total mortality. The mortality for consumption is the same as in the month preceding.

New York, 1,801,739: Total deaths, 3127—1337 under five years. Death-rate, 21.10. Zymotic diseases per 1000 deaths from all causes, 211.50. Deaths from consumption, 389.

Brooklyn, 957,163: Total deaths, 1682—840 under five years. Death-rate, 21.40. Zymotic diseases per 1000 deaths from all causes, 254.75. Deaths from consumption, 172.

Albany, 97,120: Total deaths, 168—63 under five years. Death-rate, 20.14. Zymotic diseases per 1000 deaths from all causes, 231.18. From consumption, 18.

Syracuse, 91,944: Total deaths, 121—35 under five years. Death-rate, 15.79. Zymotic diseases per 1000 deaths from all causes, 265.84. From consumption, 12.

Buffalo, 278,796: Total deaths, 478—233 under five years. Death-rate, 20.75. Zymotic diseases per 1000 deaths from all causes, 284.52. From consumption, 42.

Rochester, 144,834: Total deaths 233—91 under five years. Death-rate, 19.30. Zymotic diseases per 1000 deaths from all causes, 261.80. From consumption, 18.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of September 147 deaths in eighteen towns aggregating 99,105 inhabitants. Of this number 63 were under five years of age. The annual death-rate was 17.8 per 1000.

Typhoid-fever caused 15 deaths; diarrhœal diseases, 15; heart diseases, 10; brain diseases, 4; malarial-fever, 8; and consumption, 19.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus, reports in *Monthly Sanitary Record* as follows:

From 62 cities and towns with an aggregate population of 1,222,218, there was a mortality of 1700 during the month of September, of which number 608 were under five years of age. The annual death-rate represented was 16.66 per 1000. The deaths from zymotic diseases numbered 512, of which 105 were from typhoid-fever, 229 from diarrhœal diseases, and 116 from diphtheria and croup; from consumption there were 153 deaths; from heart diseases, 97; from pneumonia, 63, and from bronchitis, 31.

Cincinnati, 300,000: J. W. Prendergast, M.D., Health Officer, reports for the month of September 411 deaths, of which number 165 were under five years of age. The annual death-rate was 16.17 per 1000. There were 93 deaths from zymotic diseases, and 36 from consumption.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168: M. Veale, Health Officer, reports:

In the five weeks ending October 29th, 1892, there were 1984 deaths, of which number 766 were under five years of age. Annual death-rate, 19.0 per 1000. Deaths from consumption numbered 228.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the five weeks ending October 29th, 1892, there were 421 deaths, of which 178 were under five years of age. Annual death-rate, 17.16 per 1000. Zymotic diseases caused 114 deaths, and consumption, 43.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of September :

The number of deaths recorded in the different towns and cities, from which returns have been received, was 508, in an estimated population of 314,690. The annual death-rate upon the estimate given is 19.3 in every 1000 of the population.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of September were : Malarial-fever, typhoid-fever, diphtheria, dysentery, scarlet-fever, consumption, whooping-cough, meningitis, diarrhœa, and tonsilitis.

Typhoid-fever was reported in the counties of Anderson, Chester, Davidson, Fentress, Henry, Houston, Humphreys, Knox, Maury, McMinn, Morgan, Robertson, Rutherford, Shelby, Stewart, Washington, Weakley, and Williamson. Diphtheria in Chester, Davidson, Decatur, Gibson, Hamilton, Knox, Madison, Maury, Morgan, Robertson, Rutherford, Shelby, and Weakley. Scarlet-fever in Anderson, Grundy, Hamilton, Knox, Madison, Maury, Morgan, Rutherford, and Shelby. Consumption in Davidson, Hamilton, Knox, Maury, Montgomery, Rutherford, and Shelby. Whooping-cough in Blount, Humphreys, Knox, Maury, Rutherford, and Williamson. Meningitis in Anderson, Dickson, Morgan, and Rutherford.

Chattanooga, 25,000 white and 15,000 colored : Total deaths in September, 50—32 of which were colored, and 23 under

five years of age. Annual death-rates, 8.0 for the white population, and 29.5 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored : Total deaths in September, 45—16 of which were colored, and 13 under five years of age. Annual death-rates, 11.12 white, and 21.07 colored, per 1000.

Memphis, 33,800 white and 27,700 colored : Total deaths in September, 110—55 of which were colored, and 36 under five years of age. Annual death-rates, 19.52 white, and 23.82 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths in September, 131—68 of which were colored, and 45 under five years of age. Annual death-rates, 13.83 white, and 24.60 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 246,000 : U. O. B. Wingate, M.D., Health Officer, reports for the month of September 410 deaths, of which number 245 were under five years of age. Annual death-rate, 19.92 per 1000.

From zymotic diseases there were 225 deaths, and from consumption, 31.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of

August, 1892, shows that there was a total mortality of 1253, of which number 722 were of children under five years of age. From infectious and contagious diseases there were 136 deaths; from pneumonia, 124; from meningitis, 76; from gastro-enteritis, 22; still-births, 115.

MORTALITY STATISTICS ABROAD FOR THREE MONTHS ENDING
SEPTEMBER 30TH, 1892.

Population, total number of deaths, annual death-rate per 1000, and deaths from small-pox:

London, 4,263,294; 18,160; 17.0; 6. Glasgow, 669,143; 3094; 18.5; 1. Liverpool, 513,790; 2853; 22.2. Manchester, 510,998; 2594; 20.3. Birmingham, 483,526; 2158; 17.9. Leeds, 375,540; 1738; 18.5. Dublin, 349,594; 2010; 23.0. Sheffield, 329,585; 1718; 20.9; 2. Edinburgh, 264,787; 1063; 16.1. Belfast, 255,922; 1517; 23.7. Bristol, 223,592; 900; 16.1. Bradford, 219,262; 899; 16.4; 3. Nottingham, 215,395; 822; 15.3. Hull, 204,750; 959; 18.7. Salford, 201,058; 1165; 23.2. Newcastle, 192,205; 812; 16.9. Portsmouth, 163,667; 629; 15.4. Norwich, 102,736; 409; 15.9. Brussels, 486,254; 1280; 18.8; 5. Amsterdam, 406,302; 1800; 17.7. Rotterdam, 203,486; 1033; 20.3. The Hague, 156,497; 732; 18.7. Paris, 2,424,705; 12,324; 20.3; 12. Lyons, 416,029; 2034; 19.6. Marseilles, 406,919; 2427; 23.9; 1. Nantes, 127,482. Saint-Étienne, 117,875; 713; 24.2; 4. Havre, 116,369; 1468; 50.5. Rouen, 111,847; 1112; 39.8. Rheims, 105,408; 829; 31.5; 3. Nice, 97,720; 410; 16.8. Nancy, 87,110; 470; 20.9; 4. Amiens, 83,654. Limoges, 72,697; 382; 21.0; 7. Besançon, 54,636, 301; 22.0. Berlin, 1,662,237; 8754; 21.1. Hamburg, 637,686; 14,508; 91.0; 1. Leipzig, 375,707; 2935; 31.2. Munich, 366,000; 2380; 26.0. Breslau, 324,143; 2479; 30.6. Cologne, 290,000; 1990; 27.4. Dresden, 286,200; 1749; 24.4. Magdeburg, 215,760; 1671; 31.0. Frankfort, 188,050; 890; 18.9. Hanover, 171,148; 1136; 26.6. Königsberg, 164,996; 1102; 26.7. Nuremberg, 151,362; 844; 22.3. Altona, 148,615; 1113; 30.0. Chemnitz, 147,863; 1283; 34.6. Elberfeld, 131,181; 568; 17.3. Stuttgart, 129,034; 636; 19.7. Bremen, 127,993; 544; 17.0. Strassburg, 127,147; 693; 21.8. Dantzig, 122,091; 691; 22.6. Stettin, 121,512;

973 ; 32.0. Barmen, 120,284 ; 516 ; 17.2. Crefeld, 110,170 ; 666 ; 24.2. Halle, 107,551 ; 698 ; 26.0. Aix-la-Chapelle, 105,923 ; 731 ; 27.6. Essen, 83,025 ; 572 ; 27.6. Mayence, 73,877 ; 377 ; 20.4. Metz, 62,122 ; 246 ; 15.8. Vienna, 1,406,933 ; 7691 ; 21.9 ; 1. Buda-Pesth, 526,263 ; 3201 ; 24.3 ; 1. Prague, 317,614 ; 1688 ; 21.3 ; 72. Trieste, 157,343 ; 979 ; 24.9. Lemberg, 130,333 ; 868 ; 26.6 ; 47. Gratz, 114,272 ; 644 ; 22.5. Brünn, 96,186 ; 731 ; 30.4 ; 1. Cracovie, 76,116 ; 578 ; 30.4 ; 5. Presbourg, 56,746 ; 416 ; 29.3. Pilsen, 51,860 ; 302 ; 23.3. Linz, 48,565 ; 359 ; 29.6. Copenhagen, 326,000 ; 1348 ; 16.5. Stockholm, 248,051 ; 1118 ; 18.0. Christiania, 151,130 ; 791 ; 20.9. Helsingfors, 64,225 ; 272 ; 16.9. Warsaw, 490,417 ; 3843 ; 31.3 ; 110. Odessa, 302,000 ; 2014 ; 26.7 ; 15. Turin, 328,777 ; 1217 ; 14.8. Venice, 161,130 ; 749 ; 18.6. Bologna, 141,750 ; 767 ; 21.6. Bucharest, 206,000 ; 1413 ; 25.5. Jassy, 82,914 ; 495 ; 23.9 ; 10.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

IN CASES OF HYSTERIA, an effort has been made to determine whether there existed any modification in the urine which might aid in the differential diagnosis between hysteria and epilepsy or other affections. M. Bose, of Montpellier, has made, for that purpose, some experiments, which he has communicated to the Biological Society. The *Gazette Hebdomadaire* gives the following :

“ The quantity of urine voided and its color should be examined—the urea, the uric acid, the phosphates, the total amount of nitrogen. The toxic influence of the urine is greatly modified in hysteria. All these conditions, he says, are diminished except the uric acid, which is increased very remarkably in quantity. He insists particularly on three new factors, which he thinks he has been the first to formulate :

“ 1. A very definite diminution in the proportion of oxidation, calculated strictly by the total amount of nitrogen.

“ 2. Increase of uric acid.

“ 3. Great diminution in the degree of toxicity.

“ According to these conditions it seems to him correct to propose this general formula :

“ ‘ An attack of hysteria diminishes each of the urinary constituents leading to a *diminution of the oxidation* (diminution of the total amount of nitrogen) ; a *retarding of these diminished oxidations* (a diminution of the proportion of oxidation and increase of uric acid), and finally a very considerable increase of hyper-toxicity.’

“ The inversed proportion of the phosphates would not, of itself, be sufficient to characterize hysteria. This inversion may be occasionally observed in epilepsy and be absent in hysteria.”

THE INFLUENCE OF PRE-EXISTING CONDITIONS ON OPERATIONS OR INJURIES was the subject of a recent communication by M. Verneuil, in which he cites three cases of persons affected with liver disease, who died suddenly after very trifling operations. *La Gazette Hebdomadaire* says that “ the practical conclusions to be drawn from this communication are not difficult to be seen. It is necessary, before operating, to examine the patient carefully, and refuse to operate if disease of the liver exist. If the operation be not urgently demanded, the disease of the liver should be treated before performing any operation whatever.”

HEPATIC DISEASE AS A CAUSE OF MADNESS has been studied by M. Charrin. He has reported three cases of madness more or less strongly marked in which hepatic disease was present. The urine of these patients was poisonous (toxique). An hepatic form of madness may exist, as there is a similar disease from Bright's. In these patients the mental trouble improved in proportion to the improvement in the disease of the liver ; these are conditions worthy of special note. Patients with mental disturbance accompanied with visceral lesions should be treated with the greatest care. Gastric obstructions sometimes play an important part in causing many forms of mental aberrations, and by treating these lesions the madness in some cases is greatly relieved or even cured.

SOME REFLECTIONS ON FORTY-TWO CASES OF DIPHTHERIA was the subject of a recent communication read before the Société de Thérapeutique by M. Guelpa. These cases embraced thirty-two having the characteristics of angina and ten of croup. In eleven very severe cases there were three deaths. In all these cases the treatment consisted in sponging with a solution of persulphate of iron. In the ten croupal cases tracheotomy was performed in five, two of which died. Five deaths in forty-two cases, so that the mortality was extremely low when the cases are taken in time.

SULFONAL, according to Dr. J. Donellan, of Hurst (*La Semaine Médicale*, September 28th, 1892), is the best means with which to prevent or combat sea-sickness. The medication should be taken in the usual hypnotic doses as soon as the passenger has stepped aboard of the vessel. A further dose as soon as any uneasy feeling arises which would indicate the presence of sea-sickness.

ALCOHOLISM, according to M. Villard, of Marseilles, published in a recent number of *El Siglo Medico*, began thus :

“ When Noe was planting the vine, Satan saw him, and with his accustomed curiosity approached him and asked what he was planting.

“ ‘ A vine,’ replied Noe.

“ ‘ And what is its use ? ’ asked the tempter.

“ ‘ Its fruit is as agreeable to the sight as it is delicious to the taste,’ answered the patriarch, ‘ and a beverage is made from it which enlivens the heart of man.’

“ ‘ If that is so,’ said Satan, ‘ I want to help you.’

“ So saying, the Devil took a lamb, killed it, and sprinkled its blood on the earth around and in the pit dug for the vine. He then did the same with a lion, an ape, and a pig, and in this way he irrigated the roots of the vine.

“ Since that time, if a man drinks moderately of wine he becomes mild and gentle ; if he drinks more he becomes strong and ferocious like the lion ; but if he drinks still more freely he becomes malicious and crazed like the monkey ; and if he drinks to excess he becomes besotted like the pig, and wallows in the mire.”

"ANTIKAMNIA," says Dr. Hugo Engel (*Medical Summary*, September, 1892), "possesses two valuable properties—analgesic and antipyretic. Its action as an analgesic begins the moment an individual is attacked by pain, and here a great number of observations has established with me the following rule for its administration to adults.

"As early as possible after the pain has developed—if possible, immediately after—antikamnia, grs. v. are taken; from three to four minutes later, if the first dose has no or but little effect, the same dose is repeated; and again three or four minutes later, provided again the effect is *nil* or not sufficient, this dose is administered the third time. Then I let the patient wait ten minutes; if by the end of that time the pain is greatly ameliorated, but a trace of it be still present, a fourth dose of grs. v. then (*i.e.*, ten minutes after the third given) will generally stop the pain completely. But if the third dose has showed no effect whatever, it is useless for the patient to take more of the same remedy, for in such a case no amount of the drug will have any influence on the pain.

"Regarding the antipyretic action of the drug, I may premise that, excepting in a few instances, I had no opportunity to watch its effect on persons under nineteen years of age; my remarks will apply, therefore, only to adults.

"The smallest dose to be administered with the view of reducing the temperature should be grs. x., which is best given every fifteen minutes until grs. xl. have thus been taken. After that I am in the habit of ordering grs. x. every half hour, and when in this way all together 70 grains have been introduced into the system without the least sign indicating a reduction of the febrile temperature, no more of the same drug should be used, but some other antipyretic, or preferably the cold bath or pack, or both, be employed for that purpose. In most cases, however, the temperature begins to decline when from grs. xl. to lx. (3 j) have been taken of antikamnia, and by continuing to administer grs. x. every hour two more such doses—altogether grs. lxxx.—will in the most stubborn case bring about the lowest reduction of temperature possible without risk to the system. Carried still further it is apt to produce symptoms of a mild collapse, though in several cases I saw the patient take in the manner suggested over 100 grains

(105 grs. in one, 110 grs. in a second, and 115 grs. in a third case), without the appearance of any unfavorable phenomena. Still as a rule it will be wise not to exceed gr. lxxx. except under great caution—*i.e.*, *præsentē medico*."

RECENT DRUGS IN MEDICAL PRACTICE.—Dr. Barclay, of Banff, the President of the Aberdeen Medical Society, in an address on the "Recent Drugs in Medical Practice" (*British Medical Journal*), said: Dealing first with hypnotics, he found the bromides useless, but of benefit when combined with the tinctures of hyoscyamus in infantile convulsions, menorrhagia, and epilepsy. Ten to fifteen grains each of bromide of potash and antipyrin were especially efficacious in epilepsy. Chloral hydrate, if continued for any time, required to be used in dangerously large doses; amylene hydrate sometimes induced sleep, but was uncertain in its action, and the same result occurred in the use of urethan. Paraldehyde he found satisfactory, but chloralamide not infrequently induced delirium and disturbed sleep.

Sulfonal had proved the most successful of the hypnotic group, without any unpleasant effects, and was especially beneficial in cases of delirium tremens and asthma. Passing next to antipyretics and analgesics, he had found gelsemium useless. Antipyrin acted both as an analgesic and an antithermic, but was liable to be followed by great depression, and on this account he deprecated the existing freedom of its sale by druggists without the prescription of a medical man. Antifebrin was a valuable antipyretic, but of little use as an analgesic.

Both as a febrifuge and as an analgesic Dr. Barclay had found *phenacetine* most useful, and he adduced several striking examples of its value. The addition of quinine enhanced its effect, and this combination he eulogized in the treatment of acute rheumatism and herpes zoster. Exalgine had acted well as an analgesic, but required careful handling.


The president next spoke of saccharin, oxalic acid and salol. He said saccharin and salol in five-grain doses and oxalic acid in half-grain doses had been very successful in the treatment of chronic cystitis. Salicylate of ammonia had proved of value in cases of Bright's disease by causing the disappearance of

albumen from the urine. In phthisis, creosote was not readily borne, but the oil of eucalyptus gave good results; and in the night sweats he had found the administration of agaric acid and agaricine very serviceable.

Ichthyol and *aristol* in ointment did well in the treatment of psoriasis.

Europhen, as a substitute for iodoform, is said to have an admirable action, causing prompt cicatrization and insuring the operative field against further morbid degeneration. It has the further advantages of being a perfectly safe application, and is free from disagreeable odor, while it possesses a covering power five times greater than that of iodoform. It is an excellent surgical dressing, forming an adherent coating over tissue lesions and on mucous surfaces. It is used in all ulcerative and muco-inflammatory conditions, external and cavital. Hypodermically, europhen has been advantageously used in constitutional syphilis, the amount injected being three quarters to one and a half grains in a syringeful of oil once daily. It is better to begin with the smaller amount.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

MARITIME SANITATION—A REVIEW.

“MARITIME SANITATION,” according to a pamphlet issued about three months ago,* when the contention with cholera at the port of New York was at its height, and another still more recent,† “is an agamogenetic offspring of Dr. Joseph Holt, wholly conceived and soon thereafter brought forth by himself alone, at New Orleans, in 1884.

* An Epitomized Review of the Principles of Maritime Sanitation, by Joseph Holt, M.D., former President of the Louisiana State Board of Health, 1884-88. New Orleans: L. Graham & Sons.

† Pestilential Foreign Invasion as a Question of States Rights and the Constitution—the Failure of the Maritime States Demands a Common Defence. An address at the Tri-State Medical Society, October 26th, 1892, by Joseph Holt, M.D., New Orleans, La.

“Maritime sanitation,” Dr. Holt insists, “emerged and was soon full-fledged from the womb of all experience and accumulation of science, and not in the line of hereditary descent from the disreputable ‘old system.’ Having neither literature nor precedents as the sire of a royal house, it was its own ancestor, born in the Louisiana quarantine out of the loins of aseptic and antiseptic surgery.”

This is said with special reference to the use of bichloride of mercury :

“The idea of using this agent as a disinfectant in municipal and ‘maritime sanitation’ suggested itself to me while reading the chapter on ‘Wound Disinfection Antiseptics’ in the volume entitled ‘The Treatment of Wounds,’ by Lewis S. Pilcher, M.D., containing an account of the experiments of Dr. George M. Sternberg, with a table of chemical agents and their relative germicidal strengths,’ etc. . . .

“With its earliest inception the ‘new system’ has contemplated sanitary preparation in the port of departure, and prompt international notification of pestilential infection as the true beginning of maritime sanitation.”

Evidently Dr. Holt’s mind was so completely overwhelmed with his new idea of treating an infected ship with the same means that he would an infected wound, that he not only forgot to consider the difference in the construction of the ship and the difficulty of penetrating its infected sinuses, as compared with the human body and the accessibility of its wounds, but he also forgot—or else he had never learned—that ship sanitation, instead of detention as a means of preventing the introduction of infectious diseases, was a living subject before he received his medical degree, if not, indeed, before he was born.

England eschewed detention as being worse than useless at the outset of her organized health service in 1838, and from that time ever since has almost wholly relied upon local sanitation instead. But France, while behind England in the organization of local sanitation, was the first to organize ship sanitation. M. de Segur Dupeyron, the Inspector of Quarantine, M. Aubert-Roche, Mèlier, and other agitators for quarantine reform in that country, procured a royal ordinance not only abolishing detention, but requiring ship sanitation in 1847. This was followed by several additional edicts and ordinances,

more and more clearly defining and directing practical ship sanitation instead of detention until 1852. At this time so much interest had been excited in the subject, an International Sanitary Conference was held in Paris, composed of delegates from France, England, Austria, Spain, the two Sicilies, the Roman States, Greece, Portugal, Russia, Sardinia, Tuscany, and Turkey. The result of this conference was an agreement upon an international code of quarantine laws approved by all the States represented, and promulgated the following year—May 27th, 1853—comprising regulations at ports of departure, during the voyage, and at ports of arrival.

The Report of the Committee on Quarantine Regulations of the Fourth National Sanitary Convention, at Boston, 1860, was based upon the first International Conference on the subject just above referred to, but with more detail, urging in particular that

“All quarantine regulations, of any place whatever, should bear with equal force against the toleration or propagation of disease as against its introduction; and authority to prevent the introduction of disease in any place should be equally applicable against its exportation.”

It was, in virtue of this, before Dr. Holt's “earliest inception” (1884), that ship sanitation at the port of departure was first practised in the United States, at New Orleans, but by this writer, under the authority of the National Board of Health, in co-operation with the Louisiana State Board, in 1879.

And with regard to the now most universally accepted means of disinfection at ports of arrival:

“That in connection with every quarantine establishment, at the warehouses as well as at the hospitals, properly constructed steam generators and steam chambers or vats be provided for the disinfection of all personal, hospital, and ship's clothing and bedding, together with such other infected goods or things as may properly be subjected to high steam heat.”

These measures were deduced from our own practice, beginning thirty-six years before Dr. Holt “conceived.” But the above foreshowing is no detracting from the admirable promptitude with which Dr. Holt on his accession to office as President of the Louisiana State Board of Health, in 1884,

entered upon practical sanitation at New Orleans, nor from the originality of his use of bichloride of mercury as a ship disinfectant.

At a conference composed of the health authorities of all the Gulf States and Tennessee convened at New Orleans, June 2d, 3d, and 4th, 1884, Dr. Holt declared his purpose "to use such scientific and improved appliances as would enable a ship to pass up to her destination in twenty-four or forty-eight hours, if not with perfect and absolute security to the public health, at least with a thousand-fold stronger guarantee than the present system" (of detention).

Coupled with this declaration there was an agreement to give prompt notification of the arrival or outbreak of any infectious disease at the port of New Orleans.

Dr. Holt appears to have proceeded with his work forthwith.

"In the sanitary treatment of a vessel," he describes "three processes of disinfection concurrently applied." July 17th, 1884, he directed the discontinuance of carbolic acid as a disinfectant, and sent to the Quarantine Officer to use instead "two packages of bichloride of mercury and muriate of ammonia, the latter to act as a solvent," with the following directions :

"In its preparation for use, take five and a half ounces of each and dissolve in a half gallon of water ; add this to forty gallons of water in a cask. I have sent three large watering pots, with a fine rose or spray. Your men can quickly wet down a ballast pile and all available surfaces of a ship, and it needs no repetition when once thoroughly applied.

"On a single vessel we average fifteen hundred gallons of solution, but often use three thousand. The process requires from thirty minutes to two hours, according to circumstances. The decks, fore-castle, saloon, bunks, ballast and all such parts as are usually treated with carbolic acid or disinfectant fluids, objectionable on account of odor, staining and inefficiency, are freely wetted with this solution (one to one thousand) of the bichloride of mercury ; but never the cargo.

"*Sulphurous Oxide Fumigation.*—As soon as the men have completed the work of 'bichloriding' below decks, the fumigating pipe is then extended from the quarantine tugboat lying alongside. It is lengthened by sections, being fitted together like stove pipe, and conducted down a convenient hatchway to the bottom of the hold or as near the keelson as possible, preparatory to the fumigation of the entire vessel

(and cargo if any) with sulphurous oxide. In the case of a sailing ship, one hatchway gives access of the sulphurous gas to the entire hold ; but in large steamers the hold is subdivided by bulkheads into two or more distinct compartments, which must be treated separately. . . .

" The quantity of commercial roll sulphur used varies from two hundred to seven hundred pounds per vessel.

" The apparatus invented for rapidly evolving and supplying the germicidal gas consists in a battery of eighteen furnaces, each supplied with a pan to contain the sulphur during combustion. These furnaces open into a common reservoir, to the farther end of which is connected a powerful exhaust fan. . . .

" *Application of Dry and Moist Heat.*—While these two processes of sanitary treatment of the vessel are going on, all bedding, ship's linen, cushions, mattresses, flags, mosquito nets, curtains, carpets, rugs, all personal baggage and wearing apparel of whatever description, are removed from the ship to a commodious building in close proximity in which these articles are treated by moist heat at a temperature of not less than 230° Fahrenheit. . . .

" The superheating of this chamber is so provided as to furnish at will dry or moist heat, or both ; and by a turn of the hand a temperature of 300° Fahr. can be obtained."

But while he concludes that

" As it stands to-day, we sincerely believe in a nearly perfected state ; it is the consummation of experimental effort through a long and tedious process, beset with difficulties of the most perplexing and often disheartening kind," he seems to have forgotten to include in his " epitomized review" the most important lesson of his experience.

Under date of October 15th, 1886, he wrote :

A. N. BELL, M.D., *Editor of THE SANITARIAN* :

DEAR DOCTOR : I send you enclosed the copy of a letter which explains itself.

After my conversation with yourself and the gentlemen named in the letter, I became fully convinced of the utter uselessness of retaining a complicated piece of machinery as a part of the steam disinfecting apparatus. Your views then and heretofore expressed of the entire sufficiency of moist heat of high temperature, as in itself a potential agent of the most decisive kind, squares so entirely with my conviction, based upon its practical operation, that I am willing to rely upon that single agent in our treatment of clothing, baggage, ship's linen, etc. . . .

Yours very truly,

JOSEPH HOLT, M.D.

The enclosed communication referred to was :

BOARD OF HEALTH, STATE OF LOUISIANA, }
NEW ORLEANS, October 15, 1886. }

THOMAS Y. ABY, M.D., *Resident Physician Mississippi Quarantine Station :*

DEAR SIR : As one of the first of my official acts upon reaching home from Toronto, I hereby request the discontinuance of the use of bichloride of mercury in the treatment of clothing, baggage, and ship's linen in the steam superheating chamber.

After a thorough discussion of the question with several of the leading sanitarians of the country, including Drs. Sternberg and Rohé, of the Committee on Disinfectants of the American Public Health Association, and Dr. A. N. Bell, to whom I explained our method of treatment, assisted by the model of the disinfecting chamber constructed by Mr. De Armas for that purpose, there was a general consent to the opinion already reached by you and myself that the bichloride of mercury atomizing apparatus was unnecessary, and therefore a useless complication for two sufficient reasons :

1. That the high degree of moist heat attained was in itself as reliable and complete an agent of disinfection as could be desired.

2. The lack of proof that the steam charged by atomizing with the bichloride of mercury solution applies the metallic agent equally throughout all parts of the chamber, and in a strength such as to guarantee protection from this alone.

This special apparatus was devised at a time when we were of the opinion that it would be extremely difficult, if not indeed impossible, in practice to obtain any approximation to the high degree of temperature which we, by the methods used, have since invariably reached, and which will be greatly increased in our work next season ; in view of this fact it is useless expenditure of time and material to continue further any part of the process other than the steam of not less than 226° Fahrenheit. . . .

JOSEPH HOLT, M.D.,
President Board of Health, State of Louisiana.

It is creditable to Dr. Holt that, as above shown, notwithstanding his infatuation with the new idea of treating an infected ship as he would an infected wound, he relinquished it in practice on becoming acquainted with other and better means. But in the adoption of other and better means, lest, apparently, his sole conception of the use of bichloride of mercury as the acme of maritime sanitation—reached at one bound

by his own marvellous originality—should lose caste, he still harps upon that wonderful conception as the source of all maritime sanitation without reference to more effective means. Indeed, so exalted is his self-esteem on account of that false conception that he is blind to the failure of its purpose. For, besides his own abandonment of it in practice, it has recently been shown by Charles T. McClintock, A.M., of Ann Arbor, Mich. (*Medical News*, October 1st and 8th), that Klein's statement, made in 1884—contemporaneously with Dr. Holt's false conception—that corrosive sublimate was of no more germicidal value than vinegar, is very thoroughly confirmed by experiment.

The general use of corrosive sublimate as an antiseptic has been based upon Koch's statement, in 1881, that a single application for a few minutes of a solution of the strength above specified would, without any previous preparation of the object to be disinfected, produce absolute disinfection of even the most resistant organism. This dictum has been accepted and apparently corroborated by several bacteriologists. But Mr. McClintock, after a most careful study of the subject and numerous tests, has not only found that vinegar containing from 6.3 to 7 per cent of acetic acid had as much influence in inhibiting the growth of micro-organisms as a 1 to 1000 solution of corrosive sublimate, but furthermore that the *Staphylococcus pyogenes aureus*, the *Bacillus subtilis*, Eberth's bacillus, and germs in fæces would withstand the action of a 1 to 1000 solution of corrosive sublimate from an hour to forty-one hours. And his conclusion seems fully justified that the high rank heretofore given corrosive sublimate as a germicide is without warrant and based on faulty experiments. These faults have been, in the main, two: enough of the sublimate was carried over with the disinfected material to act as an antiseptic; secondly, the sublimate formed with the investment of the germ an organic compound that, especially with the use of solid media, acted as an antiseptic, and the false conclusion was deduced that the germ was dead. Sublimate forms with cellulose (cloth, filter-paper, etc.), with silk, with albuminous bodies, and with some portions of bacteria (probably the envelope) a chemical compound that no amount of washing with water will remove. The capsule it forms about

a germ not only protects the germ from the further action of the sublimate, but also forms an impenetrable barrier to the growth of the germ. The latter may be removed by salines, especially those in the blood. He also concludes that, while sublimate has no great germicidal power, it does not follow that it is not a valuable disinfectant, though it remains to be proved whether the germs contained in solutions treated with sublimate, and disposed of as such material usually is, do or do not grow.

Notwithstanding, in the second one of Dr. Holt's pamphlets referred to, also doubtless composed under the predominating idea that as cholera, on crossing the Atlantic, had, unfortunately for the country, not essayed to enter by way of the birthplace of maritime sanitation, but at "our central, richest port, there to find the extremest poverty of unpreparedness. The world knows the rest!" (The country was doomed.) Verily so: it was published in the November SANITARIAN. Surely it is a great pity that the occurrence was not at New Orleans, that the system of sanitation at that port might enjoy *the rest*—in such a totally different sense—so unexpected by Dr. Holt.

What would have been done with the multitude of passengers from infected ships; how much better care would have been taken of the sick; how much more effectually the ships and merchandise would have been disinfected; and how much more completely the cholera would have been prohibited had the onset been at the port of New Orleans instead of the port of New York, are, fortunately, mere subjects of speculation. But they suggest that to be "full fledged" the Mississippi Quarantine may profit by the example. By permission of the Health Officer, one ship at least was slushed with the bichloride solution under the direction of Dr. Kinyoun, of the Marine Hospital Service, to satisfy the faith of the biologists of the advisory committee, and possibly for the comfort of Dr. Holt. But so long as steam is thoroughly used in quarantine sanitation, it matters little—except in cost to the merchant—how great the faith of biologists in the germicidal qualities of the bichloride or how long its wonderful virtues were discovered by Dr. Holt before he *perceived* the superior efficiency of steam—upon which the excellence of the system

which he introduced at New Orleans now depends. But with regard to the *completion* of the steam disinfecting plant and needful repairs at the New York Quarantine, it is well to remember the persistence of cholera in its recent haunts abroad, and that "In time of peace prepare for war" is an axiom which can no longer be neglected with safety. It is to be expected that his excellency, the Governor, will not again veto the measure for keeping the quarantine in a state of efficiency.

Dr. Collingbridge, Health Officer of the port of London, is reported to have said recently, with reference to cholera there : " It is *the best thing* that can happen to us. If we did not get a scare about once in three years, our sanitation would soon get neglected. Cholera passed our first great Public Health Act. It formed our port sanitary regulations and authority. These acts have saved more human lives than ever cholera destroyed since the world began. If the cholera experience of the port of New York in 1892 can do for us something intelligent, humane, or even human, in the way of sanitary legislation, these squalid immigrants, who have excited so much harsh comment, may prove to be angels in disguise to ' a plenitude of generations yet to come.' "

It is gratifying to notice, however, notwithstanding the "extremest poverty of unpreparedness"—

The Success of Quarantine in New York.—Representatives of fifteen lines, forming the Transatlantic Steamship Association, met recently and adopted these resolutions :

Whereas, Dr. William T. Jenkins, Health Officer of the port of New York, and his staff, have, in our opinion, by their energy and devotion to duty averted an epidemic of Asiatic cholera that threatened not alone this port and city of New York, but also the entire country ; and

Whereas, We consider the work of quarantine was and is conducted with a view to the least possible interference with business interests and travel, so as not to inconsistently obstruct or injure commerce ; and

Whereas, We consider the different shipping interests of this port have been treated with impartial fairness ; and

Whereas, The Hon. Charles Foster, Secretary of the Treasury, and the officers of the National Government acting under his direction, aided in this noble work · be it therefore

Resolved, That the hearty commendation of this Association be, and is hereby given, to Dr. William T. Jenkins and his staff, and to the Hon. Charles Foster, Secretary of the Treasury.

From July 31st until October 21st 1120 vessels passed through quarantine, carrying 96,344 persons, who were all examined by the Health Officer and his corps of assistants. Of this great number of persons, 20,187 were first cabin passengers, 16,145 second class, 19,270 steerage passengers, and 40,742 officers and crews.

Apropos to the numerous misrepresentations of the medical press throughout the country with regard to the sanitary service of the city of New York, as well as the quarantine, attention is invited to "The New York Board of Health's Preparations Against Cholera," on other pages, by the Academy Committee, comprising the same gentlemen who, it has been alleged, resigned from the Advisory Board because the Board of Health was a mere political organization no longer conducted on scientific principles.

Dr. Holt's second pamphlet, however, though like the first, in that it is chiefly devoted to self-laudation, is ostensibly devoted to another purpose—such a national quarantine service as he would approve of; but this proposition is preceded by a remarkable misrepresentation of the whilom National Board of Health in an effort to justify his opposition to it.

"Such a board failed because it was born of timidity and compromise, and had to fail, burnt up by its own faulty construction and intense friction engendered by power out of place, a lost force with friction and pain.

"No one perhaps more vigorously resisted and fought that National Board than did I myself as the responsible head of the Louisiana State Health Department, for reasons of clearly foreseen danger growing out of these organic errors in duties not definitely established within lawful limits, and therefore unharnessed powers of mischief to the commerce and general welfare of the Mississippi Valley, particularly if by a further extension of authority that board had been made the custodian of the maritime quarantines, which were then, as generally at present, merely quarantines of sanitary pretence and arbitrary detention. We were in no manner practically guarded against a mischievous exercise of power already manifesting an aggressive disposition.

“ My hostile resentment and judicious fear were not against the principle of national control, but against the dangerous instrument devised and the power of arbitrary prolonged detention, as fully set forth in my address to the Louisiana State Senate in relation to quarantine improvement, June 26th, 1884 ; which was a vigorous protest against discrimination in favor of transcontinental or latitudinal direction of trade through the Atlantic ports, by placing in the hands of Eastern capitalists the power of throttling longitudinal commerce through the ports of the Gulf by the instrumentality of a health board.”

This imputation is a slander. The appointed members were : Henry I. Bowditch, of Massachusetts ; Stephen Smith, of New York ; James L. Cabell, of Virginia ; Hosmer A. Johnson, of Illinois ; Robert W. Mitchell, of Tennessee ; Samuel M. Bemiss, of Louisiana ; Tullio S. Verdi, District of Columbia. That they were, or any one of them was, in any degree subject to the influence of Eastern capitalists is unworthy of belief, and deserves the denunciation of every sanitarian in the country.

Further on, quoting from a previous deliverance, Dr. Holt goes on to state that

“ ‘ Louisiana fought that National Board on the broad principles of States’ rights and actual self-preservation, and was victorious.’ What States’ right ? The right to demand that ‘ No preference shall be given by any regulation of commerce or revenue to the ports of one State over those of another,’ according to clause 5, section 9, of article I of the Constitution.

“ Speaking for Louisiana as one of the maritime States, concerning an assumed task belonging to them all, I further said : ‘ We rest under a moral obligation, to fail in which would be disgraceful and most injurious to all our relations with surrounding States.’ Does this obligation apply to Louisiana any more than to Florida, Massachusetts, or New York ?

“ Having carefully noted the bearings of its machinery and points of dangerous frictional contact, it is easy to apply the lessons of experience to a reconstructed mechanism, operating on a plan strictly federal in design and limitation, and fashioned as a permanent organization, non-partisan.

“ Such a system, made general for the common defence, would throw about our common country the highest attainable guaranty of protection against the importation of pestilence, with the least possible exaction and absolutely no hindrance

to commerce; enforcing, for quarantine maintenance, a schedule of uniform charges for uniform services. The model already existing in its perfected state, such a system can be generalized and applied for the common defence without one dollar of expenditure in experimental effort.

"In addition to a maritime sanitary system generalized in application under one authority as a national safeguard, and in order to relieve the very serious objection properly urged in regard to the employment of strangers in local quarantine management, who are not personally interested and in sympathetic touch with the community under their immediate care, and to avoid all occasion of offence naturally begotten of suspicion, each maritime State should have its quarantines officered by its own citizens, chosen for highest merit, determined by a rigid competitive trial of applicants by a non-political national board of examiners, preferably of the army and navy; the local quarantine staff to be sufficiently paid in order to secure the best material for the best service, and not subject to removal except for just cause or limitation of age. The supervising national board to be permanent in personnel and construction, like the Federal judiciary, and not subject to change with every incoming administration."

In short, Dr. Holt recommends that quarantines be maintained by the States severally, under their own appointees, supported by fees collected from such ships as incur quarantine restrictions (cleanly ships with careful masters are healthful and always escape quarantine restrictions), but generalized and made harmonious in accordance with the "model already existing . . . under one authority as a national safeguard"—under the Louisiana system and Dr. Holt.

Possibly Louisiana would agree to this, but whether other States would is questionable.

It differs from the proffered service of the Marine Hospital Service to take entire charge, to relieve all the States and seaports, grant equal privileges to the clean and the unclean, to administer the whole service for "nothing," if it can—by the use of this word—persuade merchants and other people that unlimited appropriations from the United States Treasury for its support is a spontaneous product with which commerce and its supporters have no concern.

RAGS AND CHOLERA.

RAGS in relation to cholera are again the subject of misrepresentation (New York *Medical Journal*, October 29th and November 5th) by Mr. Augustine Smith, as they were by the same person a few years ago in relation to small-pox. Readers of THE SANITARIAN will not have forgotten this gentleman's effort in 1886 and 1887 to convince the American Public Health Association that there was no danger of small-pox from imported rags—that domestic rags only were liable to convey small-pox. He exhibits the same cunning now with regard to cholera as he did at that time with regard to small-pox. He apparently thinks that by selecting some person or medical periodical of eminence, though of no known intimacy with the subject, he will by such means gain support and a more respectable hearing. It was thus that, at the meeting of the American Public Health Association in Washington, December, 1885, he contrived to delay action upon the subject. And now he comes forward again, with partial and misleading quotations, to the same purpose. And we regret to notice that our esteemed contemporary, the New York *Medical Journal*, appears to sustain him. At the meeting of the Public Health Association, Toronto, the following year, he again, represented by Colonel George E. Waring, tried to suppress the report—the *evidence* called for by Dr. Billings during the last hours of the Washington meeting, when there was no time to adduce it. The report made at Toronto was accepted by the Association as conclusive, as much with regard to cholera as small-pox, and the effect has been to exclude rags from infected ports ever since.

There was a good deal of quibbling on the subject, from the standpoint of the paper-mills, in an effort to distinguish rags from—the confessed liability of—soiled clothes. But it is difficult to believe that any one interested in the prevention of disease, who will refer to the report of the committee and the discussion thereon at the Toronto meeting,* can fail to be satisfied with the evidence of the danger of cholera, as well as other infectious diseases, alike common to both rags and soiled clothing from infected places, foreign and domestic.

* Public Health. Reports and Papers of the American Public Health Association. Vol. XII., pp. 170-89, 275-89.

For example, Dr. Ruijsch, in a paper on "Rags," read at the Fifth International Congress of Hygiene at the Hague, in 1884, after citing numerous examples of small-pox and typhus communicated by them, adds: "And when we look at the report on cholera, we are amazed to see its origin and propagation are always traced to the influence of clothing, dresses, and the traffic in old garments and rags. Thus a rag-picker from Amsterdam, where cholera was raging, introduced it into the city of Tilburg in 1866 in a truckload of infected clothes. At Druten a rag-picker was the first victim in that commune. At Mearssen the first one attacked with cholera was a ragman. Again at Heusden, Oudenbosch, Hindeloopen, Nieusisburg, Leeuwarden, and Bois-le-Duc cholera was propagated by the handling of old clothes, clothing, and bed-clothing, etc.

The *British Medical Journal* of September 27th, 1884, gives an account of the transmission of cholera by means of soiled clothing from St. Louis, U. S., to the town of Mülhausen, in Thuringia, in 1873. The first case in the town, which occurred August 26th, was that of a woman who had arrived a few weeks before from St. Louis *via* New York, Hamburg, and Bremen, but had only just received the things brought with her from America about the beginning of August. Among these effects were some soiled linen, which she sent to be washed, and some confectionery, which she and her sister, in whose house she was living, partook of. A few days afterward the new-comer was attacked with cholera; then her sister; her child and her grandmother also had severe attacks of diarrhœa, and soon afterward cases of cholera occurred among other families inhabiting the basement of the house; so that, out of eleven persons who inhabited the basement, only two escaped the disease, and four died of it; while of four among the inhabitants of the upper stories, who had afforded the sick persons assistance, and also took charge of the old woman and the child, who had become ill, not one case of cholera occurred. That at the time when the effects left St. Louis, cholera had been raging especially severely in the quarter of the town from which they came has been accurately proved. The appearance of cholera in that house in Mülhausen, where there had been no case till then, after the arrival of the lug-

gage, induces the reporter of the case to believe that the specific poison of the disease was introduced with the baggage, and that the further spread of the disease among those inhabitants of the basement who had not come in contact with the things was explained as infection from the closet used in common by the inhabitants of the basement, the dejecta of the first patient having been thrown into it.

Professor Brouardel, in a paper published in *Annales d'Hygiene Publique*, March, 1885, states that :

"The linen which has been polluted by the dejecta of cholera patients is a powerful agent of propagation, sometimes direct, when, by the contact of the hands, one carries the germ to the food, when one breathes the effluvia, or indirectly when the people drink the water below the wash-houses."

He cites the following example :

"The sailors arriving from Newfoundland absolutely healthy debarked at Hetta, where the cholera was raging. Some died. They decided to return by the railroad to their native country, Fécamp and Yport. One of them died at Parascon ; his trunk continued the route, remained eight days on order at Paris, went to Yport ; an old woman opened it, emptied it, and washed the clothes. She died two days after, and created a focus far from all communication with any other centre. The soiled linen had been the only means of contact."

Dr. Henry S. Alford, Medical Health Officer of the Taunton district, reports several outbreaks of small-pox communicated by rags, and adds, with regard to cholera :

"In 1854 cholera was not known in the county of Bedford, when it broke out in the village of Ridgemont, and eleven cases occurred, all of which were fatal. It was ascertained that the first case occurred in a man whose son had died of cholera in London a week or two before, and whose clothes were sent down to the country. The poor man unwrapped the bundle of clothes himself ; he was seized with the disease and died. This case was the nucleus of others. A similar instance was reported from Lustheim, near Munich, where the first case occurred in the house of a laborer, one of whose daughters was in service at Munich. The latter sent her parents clothes from a family, some members of which had just died of cholera. These clothes were at once appropri-

ated and worn. Three days afterward (September 21st, 1854) the father and mother were seized with cholera and died. On the 22d and 25th other members of the family took the disease. Dr. Lebert reports the case of a man who was attacked with cholera, having worn the clothes of a person who had died of the disease two months previously. It is well authenticated that there were three outbreaks of cholera, almost simultaneously, in 1873, at Carthage, O., Crow River, Minn., and Yankton, Dak., due to the unpacking of infected clothing by immigrants who had recently arrived in good health by way of New York.

For more recent observations of the same kind, reference may be made to Dr. Shakespeare's elaborate report, 1890.

How long cholera germs may retain their potency under favorable conditions is not known. But that the time may be long is shown by the statement made in a paper read before the British Medical Association in 1884 by Dr. Paine, of Cardiff. "It is," he said, "a specific organism which causes cholera, which may continue latent for a long period, as exemplified in the origin of cholera in Toulon last year from stores in an old hulk that had lain by since the Crimean War in 1854."

LITERARY NOTICES AND NOTES.

THE INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, THIRTEENTH VOLUME.—The additions made by this volume to the total number of titles is especially large in book titles (13,498) and journal articles (29,896), while the author titles are proportionately somewhat less.

The volume includes words from *Sialagoues* to *Sutugin*. The second word in the index part of the volume is *sialorrhæa*, which only an extremely pedantic individual could prefer to salivation.

The mere titles referring to the *Siamese twins* nearly fill a page. It is curious to see the amount of literature to which these united brothers gave rise, and the varied points from which they were regarded. The library must have fallen heir to what might be called the literary remains of the twins, as it possesses cuttings from newspapers from 1829-74, referring

to them and their exhibitions, with handbills and advertisements, and eighteen portraits, including a water-color drawing and three caricatures. There are articles concerning them in French, Spanish, German, and Italian. Geoffroy-Saint-Hilaire reported upon them to the French Academy. Simpson lectured upon the "Siamese and other viable united twins." Eve, Pancoast, and Startin speculated upon the surgical operation necessary to separate them. The psychological side of their dual being was the subject of repeated papers, and the accounts of the post-mortem examination shows that even in death this singular pair of mortals was still a subject of interest to their medical brethren. All these papers, with many others, go to make up the list as tabulated in the catalogue.

Surgery, with its numerous sub-heads, naturally occupies a large space in the catalogue. The first volume mentioned under Military Surgery is *Abeille (S), Le parfait chirurgien d'armée, le traité des playes d'arquebuse, etc.*, Paris, 1696, which stands in curious contrast with a proposition which bears a date almost two hundred years later for *The Application of Electric Light to the Purposes of Military Surgery in Time of War*. This section on Military Surgery presents a sort of epitome of history for the last two hundred years or more. The reports of the surgical aspects of the various campaigns here enumerated would serve to reconstruct the wars and inventions during that time.

DISEASES OF THE NOSE AND THROAT are well known to be among the most common diseases mankind is heir to, and during the nearly three years since it was our privilege to notice the first volume of the elaborate work of Dr. Bosworth, of which we now have the second,* interest in these diseases has been greatly magnified by the world-wide epidemic of influenza, which has doubtless done much to complicate, if it has not, indeed, added to them.

* Treatise on Diseases of the Nose and Throat. In two volumes. By Frank Hunting Bosworth, A.M., M.D., Professor of Diseases of the Throat in the Bellevue Hospital Medical College, New York; Consulting Physician to the O. D. P. Department of the Bellevue Hospital; Fellow of the Laryngological Association, of the American Climatological Association of the New York Academy of Medicine, of the Medical Society of the County of New York, etc. Volume II. Pp. 845. Illustrated. New York: William Wood & Co.

This volume opens with the consideration of the diseases of the fauces, including under this term that region which comprises the oropharynx, the soft palate and faucial pillars, and the tonsils, first giving the anatomy and physiology of the region. The second section is devoted to diseases of the larynx, and the third section comprises the various surgical procedures. These three sections into which the volume is divided are subdivided into fifty-one chapters, each one of which is a terse description of a well-defined disease, acute or chronic, distinct or complicated, as local or systemic diseases or as constitutional disorders.

Diphtheria is considered to be an acute infectious disease, which results either directly or indirectly from the entrance of a specific germ into the system, closely analogous to the continued fevers or exanthemata, in that the blood poisoning gives rise to a febrile disturbance which is continuous to a degree, while the faucial inflammation may be regarded as the characteristic eruption which accompanies the disease. But since the definite microscopic character of the Klebs-Loeffler bacillus has been recognized and accepted, all pathologists unite in the view that this microbe does not make its way into the circulation. What the primary origin of this germ may be can only be a matter of speculation. But no fact appears to be more clearly established than that a case of diphtheria cannot arise *de novo*; in other words, that the presence of a specific germ is necessary for the causation of the disease. The anatomical differences between a croupous and diphtheritic inflammation are discussed in the first volume—the one resulting in a filimous exudation deposited entirely upon the surface of the mucous membrane, while in the other the exudate permeates the meshes of the tissue to such an extent as to result in a localized necrotic process. But all pathologists now agree in the assertion that, whereas Virchow's original teaching as to the differences between these two forms of inflammation is undoubtedly correct, yet the two merge into one another in such a way that it is impossible to establish any definite dividing line.

The other subjects, comprising the whole category of diseases under the title, are treated with equal comprehension and terseness as diphtheria. Altogether it is not only the

most comprehensive, but the best work on the diseases of which it treats hitherto published.

“DISEASES OF THE LUNGS, HEART, AND KIDNEYS” * is a volume in course of the “Ready Reference Series” of books, of which several volumes have been reviewed heretofore in these pages—books on important subjects, comprising as much useful knowledge as practicable in the smallest space—giving the gist of the subjects treated of exclusive of the redundancy common to larger works, of which the one before us is an admirable example.

Indeed, it is difficult to conceive the difficulty of the task the author of this volume undertook, to cull out the gist of the enormous amount of medical literature that exists on the subjects treated of and present it in a form so compact. But the success of his effort abundantly justifies it. No subjects are of more practical importance to the physician; and no book on them with which we are acquainted comprises so much practical information in so little space.

“TUBERCULOSIS OF THE BONES AND JOINTS” is a phase of tubercular disease which, until during recent years, has attracted altogether too little attention; and, consequently, it has often passed by the curative stage before it has been clearly recognized. In no disease does successful treatment more depend upon early recognition than this; indeed, the same may be said of all phases of tuberculosis. A new work on the subject † fills an important gap; for while old authors

* Diseases of the Lungs, Heart, and Kidneys. By N. S. Davis, Jr., A.M., M.D., Professor of Principles and Practice of Medicine, Chicago Medical College; Physician to Mercy Hospital; Member of the American Medical Association, Illinois State Medical Society, Chicago Medical Society, Chicago Academy of Sciences, Illinois State Microscopical Society; Fellow of the American Academy of Medicine; Author of “Consumption, How to Prevent it and How to Live with it,” etc. No. 14 in the Physicians’ and Students’ Ready-Reference Series. In one neat 12mo volume of 359 pages, extra cloth, \$1.25 *net*. Philadelphia: the F. A. Davis Co., 1231 Filbert Street

† Tuberculosis of Bones and Joints. By N. Senn, M.D., Ph.D., Professor of Practice of Surgery in Rush Medical College; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon Presbyterian Hospital; Surgeon-in-Chief St. Joseph’s Hospital; President of the American Surgical Association; President of the Association of Military Surgeons of the National Guard of the

treat of it, their descriptions and treatment alike are so vague as to be of but little practical utility under the light of recent knowledge. The book before us is essentially a new work on an old subject, comprising only so much of that which has heretofore been written upon it as to show the contrast between it and the recent views as expressed by the author, from his own clinical experience and that of his contemporaries. It is a thoroughly practical work, containing only so much history as necessary to elucidate it and give expression to the most successful treatment of the gravest disease of the bones and joints.

"ACNE AND ALOPECIA" is a 12mo book of eighty-four pages of the "Physicians' Leisure Library Series," on a subject with which every physician finds it necessary to be familiar; and it would be difficult to find a more ready memorandum of all the essential features and the most successful treatment of these diseases than in this little book.*

"CÆLIOTOMY" VERSUS "LAPAROTOMY" AS A SURGICAL TERM is urged by Dr. Robert P. Harris, of Philadelphia, because "*koilia*," being the Greek word for abdomen, the natural synonym of gastrotomy in its old meaning is "cæliotomy," pronounced soft (se-le-otomy). This is not a new coinage except as to its terminal, for we have long had *cælio-paracentesis* for tapping the abdomen. The term cæliotomy has been adopted by Professor Säger, of Leipzig; by Dr. J. Greig Smith, in his "Abdominal Surgery;" by Professors Keene and White, in their "Text-Book of Surgery;" and by a number of well-known medical writers. This adoption gives us the compound terms *cælio-hysterotomy* (Cæsarean section), *cælio-hysterectomy* (exsection of uterus through the abdomen), *puerperal*

United States; Permanent Member of the German Congress of Surgeons, etc. Illustrated with 107 engravings (seven of them colored). In one handsome royal octavo volume. Pp. 520. Prices—extra cloth, \$4; sheep, \$5 *net*; half Russia, \$5 *net*. Philadelphia: The F. A. Davis Co., Publishers, 1231 Filbert Street.

* Acne and Alopecia. By L. Duncan Buckley, A.M., M.D., Professor of Diseases of the Skin, New York Post Graduate Medical School; Physician to the New York Skin and Cancer Hospital, etc. 25 cents a copy. Detroit: George S. Davis.

cælio-hysterectomy (Porro-Cæsarean operation), *cælio-nephrectomy* (abdominal exsection of the kidney), etc.

THE ANNALS OF OPHTHALMOLOGY AND OTOTOLOGY has been removed from Kansas City to St. Louis, Mo.

Assurance is given that the *Annals* will continually be chosen by the leading specialists on both sides of the Atlantic for the presentation of meritorious contributions.

It is not, however, for specialists only, but a *special* periodical for the general surgeon and physician who aspire to the highest attainable advancement.

Address all communications to the editor, Dr. JAMES P. PARKER, P. O. Box 405, St. Louis, Mo.

THE CHICAGO MEDICAL RECORDER, edited by Dr. Archibald Church, and previously published by W. T. Keener, of Chicago, is now being published by that well-known house, the M. H. Kauffmann Med. Pub. Co.

“PROFESSOR BILLROTH’S SURGICAL CLINIC AT THE VIENNA GENERAL HOSPITAL,” size 24 × 32, price \$2, is the latest of the series of admirable pictures in process of publication by William Wood & Co., New York. The extremely low price at which this and the other pictures—“The Rebellious Patient,” “Before the Operation,” “Spoonful Every Hour,” etc.—seventeen of them thus far, are put, can scarcely fail to attract the attention of every physician who has a library to decorate.

“THE WHOLE FAMILY” is an illustrated monthly magazine well calculated to add to the pleasures of the household, by the same publishers as have contributed so much by means of “OUR LITTLE ONES AND THE NURSERY,” an illustrated juvenile magazine. In the number and value of prizes given, *The Whole Family* promises to surpass all other magazines. Hundreds of costly and valuable prizes will be offered during the year in our various contests, and for stories, poems, anecdotes, hows, dont’s, music, recipes, puzzles, and suggestions of all kinds. *The Whole Family*, 75 cents a year, 60 cents net; *Our Little Ones and the Nursery*, \$1.50 a year, \$1.20 net.

No name entered on our list until subscription is paid. To this rule we make no exception. RUSSELL PUBLISHING CO., 196 Summer Street, Boston, Mass.

THE "ALL AROUND THE YEAR" CALENDAR (entirely new design in colors by J. Pauline Sunter. Printed on heavy cardboard, gilt edges, with chain, tassels, and ring. Size, $4\frac{1}{4} \times 5\frac{1}{2}$ inches. Boxed, 50 cents: Lee & Shepard, Boston, Mass.) which Mrs. Sunter sends out this year is as charming a piece of work as anything she has done. Like its predecessors, it is printed on heavy cardboard, gilt edged, with chain, tassels, and ring, and is of convenient size. The designs are fresh and delightful; done in several colors. One can scarcely imagine anything more graceful than the twelve cards, each bearing the dainty design which includes the month's calendar as a part of the picture. The cover shows a pretty little miss watching a cupid "warming his pretty little toes" at an open fireplace, while on the last page this same cupid (or his fellow) is playing sweetly, "Good-bye, my lover, good-bye."

THE SANITARIAN is filled with articles of scientific interest and practical value. It would be difficult to plan a better professional magazine than this, which is to the medical world what the *Scientific American* is to the artisan world. It deserves a greatly increased circulation.—*Baltimore Methodist*.

THE SANITARIAN is not only an interesting magazine to the specialist and the medical man, but it is of high value to thickly settled communities, to homes, to general readers, to city authorities—indeed, we would place the journal, for public good, in the hands of every adult, believing thereby that misery and suffering would be lessened and human happiness augmented by the knowledge the journal disseminates.—*Sacramento Record-Union*.

WOMEN'S WORK.—In the November number of the *Atlantic* the Rev. Samuel W. Dike thus speaks of the great work which our highly educated women could do in some of our country towns:

"There are large sections of our rural communities, proba-

bly having a population exceeding the entire population of our large cities, which are as needy of something like the spirit and aims of the university settlement as the cities themselves. The home, the neighborhood, and the village, in the country, are often in sore need of the suggestions and touch of persons who are skilled in sociology and the social sciences as well as inspired with religious fervor. Many a woman of education, having the social spirit, and who has gone far enough in study to have the sociological sense and method fairly developed, can do more for a country town than any one of its educated men. She may or she may not have an official position. Such a woman, living, it may be, in her own home, and fulfilling her common duties of wife and mother, has a mission. She may become a leader in plans for the village and neighborhood, or even in university extension among women. A few years ago, a woman of this type, but without a college training, found time, amid the cares of her own domestic life, to give, in and around Boston, courses of six lectures each, on the family, children, home, education, and kindred topics. Tickets were sold for the course. Everywhere crowded houses met her, and in more than one instance the lectures were repeated in the same place and with equal success. The most significant thing about it all was the frequent expression, as well as the general recognition of the value of work applied at the very springs of our social life. This and similar kinds of work need to be done by hundreds of the graduates of our colleges for women. Women can reach women in ways and with a sympathy impossible to men."

FRANCES E. WILLARD, even if she had been a maker of sepulchres, would have been a personality well worth studying. As a human she is, in many respects, unique. As a woman she occupies a place by herself apart. A beautiful character is beautiful although its beauty blushes unseen, and no one who has had the honor of Miss Willard's friendship would deem it otherwise than a privilege to have the opportunity of introducing her to the widest possible circle of readers. But the supreme importance of Miss Willard consists in the position which she holds to the two great movements which, born at the close of this century, are destined to mould

the next century as the movements born in the French Revolution have transfigured the century which is now drawing to its close. The Emancipation of Man and the Triumph of Free Thought, which were proclaimed by the French Revolution, were not more distinctive of the eighteenth century than the Emancipation of Woman and the Aspiration after a Humanized and Catholic Christianity are characteristic of our own century. Of both these movements Miss Willard is at this moment the most conspicuous representative.—*From Mr. Stead's character sketch of Miss Willard in November Review of Reviews.*

IN TORNADOES.—Those living in portions of our country exposed to tornadoes will be glad to know that scientists tell us there is always warning of the approach of a tornado to those that are observant. Clouds may be seen hurrying together in the southwest and west, a low dull roar of the wind in those clouds may be perceived, while there is a great stillness and sultry heat in the air; all of which signs are sufficient to bid people look for safety. This safety they will never find in an easterly direction. One who faces the cloud as it comes should seek safety to the right. The only absolute safety, however, is to be found underground, in the cellar of the house, if it is a wooden house, as the storm will whirl off the beams and boards of the structure; but if it is a brick or stone house, the shattered walls will only tumble in; the brick or stone house, moreover, will fall sooner than the wooden one, which yields and gives. In the tornado countries, especially in the more open portions, there should be an underground place provided for refuge, with its roof arched and strengthened by masonry and beams, so that it cannot be broken in by anything heavy falling upon it.—*From Harper's Bazar.*

SUNDAY AT THE WORLD'S FAIR.—The Day of Rest is too important an institution in its relation to the physical, moral, industrial, and spiritual interests of the nation to be subjected to any supposed financial necessity. The World's Fair should not be kept open seven days of the week for any sordid reason. If Congress is to change its decision, it must be for sanitary, educational, and moral reasons, and not for

merely financial ones. The Sabbath must not be bartered away ; it must be put to its best uses—the uses of man. If the gates are to be opened, it must be in the spirit of the statesmanlike, patriotic, and inspiring programme outlined by Bishop Potter in his paper printed in this number of the *Century*, and of the Rev. Dr. Gladden's admirable statement in our "Open Letters."

If the gates are to be opened during any part of Sunday, it should be for a silent exhibition : no hum of machinery ; no confounding of the Day of Rest with the days of labor. Sunday should be the day devoted especially to the higher phases of the great Exposition—the natural beauties of the situation, the architecture, the landscape-gardening, the art, the music—to the opportunities of listening to learned, patriotic, or spiritual discourse. Religion should not stand at the gates to drive away with thongs and reproaches the crowding myriads of humanity ; but with outstretched hands it should welcome men, women, and children to all within those gates that is noblest and most saving. The World's Fair at Chicago can and should be made an object-lesson of the humane and genuinely Christian use of the first day of the week.—*Editorial in the November Century.*

HARPER & BROTHERS have just issued a sumptuously illustrated work on *Chicago and the Fair*, by Julian Ralph, which they offer exclusively to new or renewing subscribers to *Harper's Magazine*, *Harper's Weekly*, or *Harper's Bazar* at the cost of fifty cents in addition to the yearly subscription price of the periodical. The chapters embraced in the volume are the result of Mr. Ralph's special studies in Chicago, and are illustrated with seventy-three full-page pictures. The work has been approved by the Department of Publicity and Promotion of the World's Columbian Exposition.

MECCA, THE HOLY CITY, sometimes called Om-el-Kora (the mother of towns), lies in a narrow sandy valley running north and south, among barren hills from two hundred to five hundred feet in height, about forty-six miles from the Red Sea port of Jedda. The city lies open on all sides ; it has few trees, and no fine buildings except the great mosque. It

is not well supplied with water, and in the height of the pilgrimage this fluid becomes scarce and dear. The wells are brackish, and there are few cisterns for collecting rain-water. It is true that the flow of the holy well Zem-zem in the mosque is copious enough to supply the town, but there is a prejudice against using the water for common purposes, and besides, it is heavy and bad for digestion. The best water is brought in an aqueduct from the vicinity of Arafat, six or seven hours distant, but the conduit is in bad repair, and uncleaned, and this supply often gets low. The streets are unpaved, and as the country is subject to heavy rains, alternating with scorching heat, they are always either excessively muddy or intolerably dusty. The fervent heat of the town is always contrasted with the coolness of the elevated city of Medina. Mohammed said that he who had endured the cold of Medina and the heat of Mecca merited the reward of paradise. Sudden and copious storms of rain frequently deluge Mecca; sometimes the whole town is submerged, houses are swept away and lives lost, and water has stood in the mosque enclosure as high as the black stone in the Kaaba.—*From "The Holy Places of Islam," by Charles Dudley Warner, in Harper's Magazine for November.*

THE PAN-AMERICAN MEDICAL CONGRESS WILL BE HELD AT WASHINGTON, D. C., SEPTEMBER 5TH-8TH, 1893.

The heavy expense of organization, aggregating about \$5000, must be met out of advance registration fees. The address of the treasurer, Dr. A. M. Owen, is Evansville, Ind.

CHARLES A. L. REED,

Secretary-General,

Cincinnati, O.

It hardly seems necessary to state that, considering the action taken by the American Medical Association, numerous State medical organizations, and the action of Congress and the President for its promotion, the honor of the medical profession in the United States is staked in behalf of this Congress.

The preliminary announcement, recently issued, shows the organization to be well-nigh complete, and the prospect is—relying upon the support which its importance merits—that it will be a great success.

"THE MEDICAL AND SURGICAL REGISTER OF THE UNITED STATES."—R. L. Polk & Co., Detroit, Mich., have now in course of compilation the third edition of this valuable publication.

The "Medical and Surgical Register" has become a standard work, and occupies its field exclusively; it gives a complete record of the physicians of the United States, colleges and date of graduation, besides much other valuable information of interest to the profession. It is the only work that has ever made the attempt to record the physicians of the United States according to the medical college training each individual has received, and is remarkably free from the mistakes inseparably connected with the preparation of such a volume. The work is worthy the support of the profession, and we trust that every physician will respond promptly to the request of the publishers for data which will aid materially the compilation of the work.

REMINGTON BROTHERS' NEWSPAPER MANUAL, 1892 (Remington Bros., Pittsburg, Pa., and New York), is a handsomely bound volume of 540 pages, admirably arranged with a view to the greatest facility as a reference work for its purpose.

The contents include complete lists of all newspapers and magazines in the United States and Canada, with their days of issue, politics, and circulations, and classified lists of the principal dailies and weeklies, and the best agricultural, religious, scientific and trade publications and leading magazines. Remington Bros. evidently recognize the principle that the business man desires the easiest way of getting at the information sought, hence to this end they have arranged all the lists upon the alphabetical plan both as to States, towns in the States, and the several papers in the towns. In the general list population is given of each town and of the county in which it is located, and county seats are indicated by a special mark.

To advertisers it is especially valuable, containing as it does every particular necessary for the general description of each newspaper, and so arranged as to admit of the readiest reference, but scarcely less valuable to other business men who would know the populations severally of the cities and towns in the United States.

THE CHARLOTTE MEDICAL JOURNAL is a new and well-gotten-up medical monthly, under the editorial and business management of E. C. Register, M.D., and J. C. Montgomery, M.D., Charlotte, N. C.

JULIAN J. CHISOLM, M.D., LL.D.—The South Carolina College, at its recent commencement (June 29th), conferred the degree of LL.D. upon Professor Julian J. Chisolm, of Baltimore. He has achieved any distinction a literary college has within its power to bestow, and the university of his native State has honored itself in honoring Dr. Chisolm.

PRIZE ESSAYS.

THE *United States Investor* has decided to offer \$1000 in prizes for essays of not more than one column each respecting American cities and towns.

We take pleasure in announcing that the following distinguished gentlemen have consented to act as judges to award these prizes :

Hon. HENRY CABOT LODGE, of Massachusetts.

Hon. CHARLES F. CRISP, of Georgia.

Hon. JULIUS C. BURROWS, of Michigan.

The prizes will be subdivided as follows :

For the best essay respecting any American city or town, \$500 ; for the second best essay respecting any American city or town, \$300 ; for the third best essay respecting any American city or town, \$200.

Each essay is to deal with the merits of the city or town, chosen as its subject, either as a desirable place of residence ; as affording opportunities for investment ; as a place of peculiar location ; as a place of unusual rapid growth ; as a place in which an unusually large amount of capital and labor is employed in any particular industry ; as a place possessed of great undeveloped resources, such as water power, coal and iron, etc., which is peculiar because it has long escaped attention ; as a place of great historical interest ; or as possessing any other claim to unique interest or special distinction.

In awarding the prizes the judges will consider the literary merits of the essays, as well as the merits of the town or city described. They will not, however, go outside of the essay itself for evidence that the town or city possesses any special interest. Any claims which even a well-known city may have to distinction within the intent upon which these prizes are offered must rest wholly upon what is said by the essayist within the space of the column allotted to him. This condition, together with the consideration of literary merit, will give the essayists an even chance. All the essays which are intended for competition should be marked as such and forwarded to either of the offices of the *United States Investor*, 19 Pearl Street, Boston; 335 Broadway, New York; 241 Chestnut Street, Philadelphia.

ON THE ACTION OF ALCOHOL AND ITS VALUE IN DISEASE.

The American Medical Temperance Association, through the kindness of J. H. Kellogg, M.D., of Battle Creek, Mich., offers the following prizes :

1. One hundred dollars for the best essay "On the Physical Action of Alcohol, based on Original Research and Experiment."

2. One hundred dollars for the best essay "On the Non-Alcoholic Treatment of Disease."

These essays must be sent to the Secretary of the Committee, Dr. Crothers, Hartford, Conn., on or before May 1st, 1893. They should be in type-writing, with the author's name in a sealed envelope, with motto to distinguish it. The report of the committee will be announced at the annual meeting at Milwaukee, Wis., in June, 1893, and the successful essays read.

These essays will be the property of the Association, and will be published at the discretion of the committee. All essays are to be scientific, and without restrictions as to length, and limited to physicians of this country.

Address all inquiries to

T. D. CROTHERS, M.D.,

Secretary of Committee,

Hartford, Conn.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF
PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$180, will be made on July 14th, 1893, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1st, 1893.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1892 has been awarded to Dr. R. H. L. Bibb, of Saltillo, Mexico, for his essay entitled "Observations on the Nature of Leprosy."

CHARLES W. DULLES,
Secretary.

PRIZE COMPETITION FOR THE BEST DESIGNS FOR SUBURBAN
COTTAGES, STABLES, MANTELS, ETC.

Open to all architects and draughtsmen. The proprietors of the *Suburban Gazette*, a weekly journal devoted to the suburban real estate and building interests in the vicinity of New York, desire to secure for publication and distribution as premiums, a number of practical building plans, details, specifications, etc., and believing the best results will be obtained by an open competition, have decided to offer 100 cash prizes, aggregating nearly \$11,000, in 45 classes; for conditions and particulars address the *Suburban Gazette*, Jersey City, N. J.

PAMPHLETS, REPRINTS, REPORTS, ETC., RECEIVED.

Cholera and its Migrations. Henry Hartshorn, M.D., Philadelphia.

Tuberculous Ulcer of the Stomach ;
Grave Forms of Purpura Hæmorrhagica ;
Uses of Fever Heat—Dangers of Antipyretics in Typhoid-fever ;

Whooping-cough : Its Management and Climatic Treatment ;
Limitations of the Powers of Therapeutics ;
Gastric Disorders of Pulmonary Tuberculosis ;
Clinical Remarks on Dysentery. John H. Musser, M.D., Philadelphia.

Treatment of Epilepsy ;
Outline of a Plan for an Epileptic Colony. Frederick Peterson, M.D., New York.

Some Moral Factors in the Engineer's Career. Alfred R. Wolff, M.E., New York.

Effect of the Aeration of Natural Waters ;
Amount of Dissolved Oxygen Contained in Waters of Ponds and Reservoirs at Different Depths. Thomas M. Brown, M.D., Boston, Mass.

Diseases Peculiar to the Right Iliac Fossa ;
Experimental Research on the Implantation of the Ureters into the Rectum. R. Harvey Reed, M.D., Mansfield, O.

Indications and Contraindications of High Altitude in Phthisis, Carl Ruedi, M.D., Denver, Col.

Abscess of the Temporo-Sphenoidal Lobe, and of the Middle Lobe of the Cerebellum ;

Sulphide of Calcium in Tonsillitis ;
Practical Cerebral Localization. Frank P. Norbury, M.D., Jacksonville, Ill.

Gynæcological Technique ;
Cystectomy for Polycystic Ovarian Tumor. Professor Howard A. Kelly, Johns Hopkins University, Baltimore, Md.

Ideality of Medical Science. Maurice J. Burstein, A.M., M.D., New York.

The Sensory-Motor Functions of the Brain ;
Pneumonia and the Cause of Heart Failure ;
A Plea for the Medical Expert. L. Harrison Mettler, A.M., M.D., Chicago, Ill.

Hernia in Infancy. W. R. De Garmo, M.D., New York.
Results in Cases of Hip-Joint Diseases Treated by the Portable Traction Splint. Lewis A. Sayre, M.D., New York.

Practical Results of Bacteriological Researches. George M. Sternberg, M.D., Surgeon U. S. Army.

Tuberculin and the Living Cell. Charles Denison, A.M., M.D., Denver, Col.

Troubles of Winter Tomatoes ;

Creaming and Aerating Milk ;

Removing Tassels from Corn ;

Comparative Merits of Steam and Hot Water for Greenhouse Heating ;

Electro-Horticulture. Cornell University Agricultural Experiment Station, Ithaca, N. Y.

Physical Culture—a Manual of Home Exercise. A. G. Spalding & Bros., New York.

Annual Report of the Department of the Insane of the Pennsylvania Hospital. John B. Chapin, M.D., Superintendent, Philadelphia.

Cincinnati Hospital Medical Library—Address delivered at the opening, May 11th, 1892, C. G. Comegys, M.D., President of the Staff ; Address by David Judkins, M.D., of Board of Trustees ; Address of Hon. William M. Ramsey ; Address by William Carson, M.D., Librarian, Cincinnati, O.

Report of Friends' Asylum for the Insane for 1891. John C. Hall, M.D., Physician-in-Chief and Superintendent, Philadelphia.

Report of the Midwifery Dispensary, New York, for 1891. Asa B. Davis, M.D., Resident Physician.

Report of Board of Managers of the Observatory of Yale University. Robert Brown, Secretary, New Haven, Conn.

Preparation of the City of Brooklyn for Cholera Epidemic in 1884 and 1881. Joseph H. Raymond, M.D., Brooklyn, N. Y.

Sulphur Fumigation in Cholera. Joseph Raymond, M.D., Brooklyn, N. Y.

Talipes Equino Varus. B. Merrill Ricketts, Ph.B., M.D., Cincinnati, O.

Annual Lectures Delivered before the Alumni Association of the College of Physicians and Surgeons of Baltimore, 1892. Dr. W. E. B. Davis, Baltimore.

Femoral and Ventral Hernia in Woman. Henry O. Marcy, A.M., M.D., LL.D., Boston, Mass.

The Kangaroo Suture. *Ibid.*

Aphasia Due to Sub-dural Hemorrhage without External Signs of Injury. L. Bremer, M.D., and N. B. Carson, M.D., St. Louis, Mo.

Bright's Disease. L. Bremer, M.D., St. Louis, Mo.

Tobacco, Insanity, and Nervousness. *Ibid.*

Drainage and Gauze Packing as Applied to the Uterus in Chronic Endometritis and Chronic Metritis, not only where these Conditions Exist Independently of Salpingitis or other Forms of Perimetritis, but also where they are Associated with such Disorders—Forty Cases. William M. Polk, M.D., New York.

The Moral Imbecile. I. N. Kerlin, M.D., Elwin, Pa.

Custodial Care of Adult Imbeciles. Papers and Discussions at National Conference. *Ibid.*

Combination of Steel and Plaster of Paris for Fixation of Ankle and Tarsus, and Deformities following Excision of Knee-joint. John C. Schapps, M.D., Brooklyn, N. Y.

Where Dentistry Looks over into Oral Surgery. G. Lenox Curtis, M.D., New York.

Laryngeal Phthisis. Robert N. Levy, M.D., Denver, Col.

Chemical Cure for Consumption and Asthma. W. R. Mack, A.M., M.D., Cincinnati, O.

Second Year's Work in Diseases of the Rectum at the New York Post-Graduate Hospital. Charles B. Kelsey, M.D., New York.

Papers on the Epidemic of Influenza, from 1889 to 1892. Drs. Rowland G. Curtin and Edward W. Watson, Philadelphia, Pa.

Drug Habituation. Lucius W. Baker, M.D., Baldwinville, Mass.

Dipsomania. *Ibid.*

Pennsylvania Training School for Feeble-Minded Children, 1891, Elwyn, Pa.

Methodist Episcopal Hospital, 1891, Brooklyn, N. Y.

Maryland Hospital for the Insane, 1891, Baltimore, Md.

Brooklyn Eye and Ear Hospital, 1891, Brooklyn, N. Y.

Central Throat Hospital, 1891, Brooklyn, N. Y.

Presbyterian Eye, Ear, and Throat Charity Hospital, 1891, Baltimore, Md.

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